Lumleian Lectures

ON LIFE AND ON VITAL ACTION IN HEALTH AND DISEASE.

Delivered at the Royal College of Physicians,

BY LIONEL S. BEALE, M.A., F.R.S.,
PHYSICIAN TO KING'S COLLEGE HOSPITAL.

LECTURE II.—PART II.

ABSOLUTE DISTINCTION BETWEEN THE LIVING AND THE NON-LIVING MATTER.

THE conclusion which is impressed upon my mind, with ever-increasing force, is, that the distinction between the living and the non-living is not of a gradational kind; but, on the contrary, that it is absolute. Whatever may be the difference between plant and animal, however deep and wide may be the gulf which intervenes between the lowest and the highest living, it will, as I believe, be shown to be as nothing compared with the chasm by which the lowest living is separated from every form of the non-living.

It has been contended that because the line supposed by our predecessors to mark off the vegetable from the animal kingdom has proved to be fallacious the distinction held by some to exist between the living and the non-living will, some day, be broken down. But what analogy is there between the two cases? It would be as logical to insist that, as it can be shown that certain changes in a dog, in some particulars, somewhat resemble certain changes in an oak, it necessarily follows that at some future time it will be proved that dogs and oaks are not to be distinguished from crystals. It ought not to be necessary to point out that the proof that a distinction formerly believed to exist between different kinds of life could not be established, did not ensure the further demonstration, at some future time, of an alliance between any life and no life. We may be, in some respects, like plants, without men and plants being like stones.

In this lecture I have adverted to many facts and arguments which seem to me to justify the conclusion that there are certain phenomena characteristic of all living matter, and which are included under the terms *nutrition, growth, formation, multiplication*,—which are not physical, and which cannot be in any degree explained by physical law. I propose, therefore, to call these *purely vital actions*, and I consider they ought to be placed by themselves in a class or category distinct from that of physical phenomena.

I have never been able to discover in any non-living bodies whatever any phenomena which can be fairly said to correspond to, or to be comparable with, the above. Nor can I discern the faintest analogy between the marvellous changes which affect every kind of living matter in nature and any changes which have been proved to occur under any circumstances in matter which does not live. And if we believe with Grove that "man will never know the ultimate structure of matter or the minutiæ of molecular actions," must we not conclude, *à fortiori*, that man will never know the ultimate structure and arrangement of the atoms of living matter, and the minutiæ of those marvellous phenomena which proceed in the centre of every living particle?

Until the ultimate structure of non-living matter and the minutiæ of molecular actions, and the ultimate arrangement of the atoms, and the minutiæ of the actions of living matter shall have been made known, there can be no valid objection to our being influenced by facts that are actually known at this time, which justify the arrangement of phenomena in two distinct classes—

1. Vital phenomena.
2. Physical phenomena.

The vital actions of living beings are exclusively confined to the bioplasm or living matter. When this becomes converted into any kind of formed material, or when it suddenly dies, physical and chemical changes ensue which we are able to investigate. The purely vital phenomena of the bioplasm continue only so long as this remains in its living state. If we endeavour to investigate the nature of vital actions, and attempt, in the first place, to ascertain the constitution of living matter, the first thing we do is to destroy its life. The substances we submit to examination are not really the actual materials that were alive, but only chemical compounds that were found at and after death.

There is yet another consideration to be advanced in favour of the doctrine of the absolute difference between living and non-living matter. In the non-living world every change is dependent upon, or is a consequence of, anterior change, and must, in its turn, lead to consequential changes. Each antecedent has its consequent. A real cause is not conceivable in the physical world, but I do not know upon what data the same could be affirmed with respect to the living world.

Consider how the simplest vital action is to be accounted for: such movement, for example, as may be seen to take place in the living matter of a common amœba. Let us inquire what was the condition of the moving matter at a given spot just before the visible movement occurred. Who shall prove the nature of the antecedent to which the movement of the particles is a consequent? And who will demonstrate that the movement immediately following was a direct consequence of that which had been observed? It will, I know, be again most confidently asserted by physical authority that the movement in question, as well as other phenomena which puzzle us at this time, will, to a certainty, be proved to be due to physical change in the time that is to come. "To-morrow, and to-morrow, and to-morrow," has always been the refuge of the philosophers who have faith in the dogma that matter alone is competent to develop every form of life. But the "to-morrow" of Lucretius has not yet dawned; and how many thousand years, I would ask, may be expected to pass away before the prophecies of those who would now go along with Lucretius shall be fulfilled?

Let us now revert to the changes occurring during the nutrition and growth of the simplest living organism, such as the yeast-corpuscle. May we not conceive physico-chemical forces to be at work there to any extent imaginable, and yet fail to gain anything approaching to an adequate explanation of the facts discerned? Let it be admitted that in nutrition electro-chemical changes play an important, if you please, an absolutely essential, part. The internal surface of the cell-wall, in contact with the bioplasm, and the external in contact with water, will, no doubt, be in opposite electrical states, and electrical currents will be constantly manifested. But will these or any other physical conditions account for the formation of the matter of the "cell-wall," or the increase of the bioplasm within?

As it were, behind all the physical and chemical actions in living beings are prior changes which are as essential as is the arrangement of the metals and solutions of a voltaic cell to the establishment of the current. Behind the osmose and the currents in the living cell are the changes in the bioplasm, by which alone the physical actions are rendered possible, and the continuance of these provided for. The phenomena of the bioplasm is their antecedent or cause. These phenomena have already been briefly adverted to under another head, but it is desirable I should recur to them here.

Observation has accompanied us throughout a long line of investigation which has been passed by, almost without notice, by physical philosophers. Let us now, however, proceed beyond this point, and stretch onwards in imagination and see whether our notion concerning the absolute difference between the living and non-living is supported or contradicted, swerving neither to the right nor to the left from the straight path which was pointed out from the first. We must again try to conceive the changes proceeding in those minute centres of living matter to which I have already alluded. Within every centre of every one of the thousands of minute molecules of which I conceive every particle of living matter is constituted, is a more central centre, in which the matter is a degree nearer the point where it began to live, and where new powers were first communicated to it. To bring the mind, as it were, face to face with the actual change that occurs, seems, at this time, hardly possible. But surely one is justified in concluding that the *cause* must be, so to say, very central, and that in living matter the

direction of the action of the forces is from, and not towards, centres. All that goes on in the environment is necessary—essential if you please,—but it is to the power acting from the centre within, and welling up, as it were, from a yet more central source of power which seems inexhaustible, that vital phenomena must be attributed. Having been carried so far, how am I to resist the conclusion that the power that influences must be more central than the matter that is influenced; and that, therefore, the central life-communicating power plays a far more important part in the phenomena of life than anything in the environment acting from without? That forces in the environment react upon the force or power acting from the centre may be fully admitted, but that these are the *cause* of central activity is clearly an untenable proposition. The central action is absolutely essential, and the difference between the matter in the centre and the matter in the environment is absolute. Neither can the conditions under which action occurs be regarded as the true cause of the action, since the conditions are conceivable without the action; and the action in question clearly must exist ere it can be influenced by conditions. It would surely be as unreasonable to regard the power by which the atoms of a mass of living matter are arranged and their forces guided as the same in nature as the atoms and forces themselves, as it would be to suggest that the mind of the artist is but another form or mode of the properties of the matter of the paints he blends, and disposes as he may determine upon his canvas.

The phenomena which I have described as characteristic of every kind of living matter in nature, and which are known only in connexion with living matter, I must ask you to regard as purely *vital actions*, due to the operation of a force or power capable of controlling matter and its forces, but neither originating in them nor formed by or from them, nor capable of being converted into them—a power which we cannot isolate or physically examine, but the effects of the action of which we may study. Thus we may learn much, and even, I think, form some dim conception of this wonderful power, which, stirring in every living particle, establishes between it and every non-living atom, or collection of atoms, a difference which is absolute.

THE CONSTRUCTION OF THE BODY BY BIOPLASM.

All development of structure, all the structural peculiarities of living beings, are due to changes which have taken place in bioplasm; all those characters upon which we depend for distinguishing one living form from another are the result of changes occurring in bioplasm—changes which took place long before any differential characteristics had manifested themselves. In the formation of every tissue, in the construction of every organ, and of every form of mechanism existing in a living being, bioplasm is the sole essential and active agent. And if, as I have endeavoured to show, the ordinary phenomena, characteristic of all living matter, cannot be adequately explained except by the operation of an agency of an order or kind distinct from, and without direct dependence upon, or causal connexion with, any mode of physical force yet discovered, how is it likely that the yet more remarkable results of formative or constructive power should be accounted for, unless we admit the operation of such peculiar agency? Whether we examine the marvellous details of the most minute structures entering into the formation of the tissues, or study their chemical composition, whether we take note of the simplicity of the conditions under which they are produced, or consider their wonderful, and in many instances inexplicable, properties, we shall be forced to conclude that no ordinary physical actions will, alone, account for the result. The more minutely the details are investigated, the more firmly, I feel sure, will the conviction become established that the agency by which each one of a long series of successive, but not necessarily consequential, changes cannot possibly be of the nature of ordinary force, seeing that no forces known, except those operating in living matter, have been found competent to effect special structural arrangements. But the case is still stronger than I have stated it; for many of the special arrangements in living animals, wonderful and elaborate as they are, serve only a temporary purpose. While these are in active function, more permanent, and perhaps still more highly endowed, organs are slowly undergoing formation.

Every attempt to explain the formation of any definite organ by what is called evolution and the operation of physical causation, independently of intelligence and of guiding governing power, has signally failed. Even with the aid of that wonderful "nature" with a capacity for differentiating herself, which the evolutionists have been obliged to call to their aid, we get only a very confused and inadequate notion of the formation of any single tissue of any one organ—the eye, for example. Let it be fully explained, in full detail, according to evolutional law, how the formation, not of the eye as a whole, but of one only of the tissues of the eye is carried out. Such an explanation would have far more weight than the assurance that the eye may be compared with a telescope, or that it exhibits an indelible stamp of its lowly origin. By vague suggestions of this sort nothing whatever is proved, or even rendered probable. An interpretation of facts is authoritatively given, favourable to certain preconceived views, and that is all. Other interpretations might be given, but for the time all others are excluded, by authority that rules as if it were infallible.

No one has yet been able to account for the arrangement even of the nerve-fibres of the nerve-plexus of the eye or of any other organ. The little papillæ of the frog's tongue are, as I have remarked, organs admirably adapted for investigation, and I wonder that these have not been selected to illustrate the theory of evolution. They can be easily obtained for study, and are far less complex, and more easy of investigation, at every stage of development, than the eye.* A discussion concerning their formation, and the laws by which it is governed, would be extremely interesting. It is not very likely that evolutionists will accept this or any other challenge for the purpose of testing the application of their doctrine to the details of anatomical structure. They prefer generalities; and as long as they are able to make people believe that their doctrines are true, and that their prophecies will be verified, they are wise. If they are encouraged to persist in calling attention to general characters, to the exclusion of details, and to select out of nature's storehouse just those facts which support their own theories, taking no account whatever of facts which cannot be explained by them, they will be able to hold their own; but whenever they are forced to go into detail, and study the minutiæ of the development of an individual organ, the difficulty of the application of the doctrine will be apparent enough to everyone, and the further the investigation is pushed the more will the difficulties to be surmounted by the evolutionists increase as regards degree and number.

Let me now consider, but only in the merest outline, the changes which occur when bioplasm, manifesting its wonderful developmental powers, at last gives rise to the formation of tissue.

The earliest state of matter, in every kind of development, is that of bioplasm, which was derived from pre-existing bioplasm. The masses of living matter absorb nutriment, and the whole increases in bulk. So far, the only indication of formed material is afforded by the presence of a little soft transparent mucus-like matter without any indications of any definite structure. This material is formed, and accumulates around each mass of bioplasm. During the development of tissue, bioplasm masses, embedded in their soft matter, continue to divide and subdivide. As development advances, there may be discerned amongst the bioplasts here and there one which undergoes more active change than the rest. This, in fact, becomes a new centre from which growth proceeds, while the neighbouring bioplasts remain passive for a time, and some gradually waste. Soon, by division and subdivision, a collection, composed of a new series of bioplasts, results. Many such collections are formed, being separated from one another by the altered bioplasm particles of the previous generation and their imperfectly developed formed material. Thus result the first indications of the different structures and organs which appear in the embryo of man and the higher animals at a very early period of development. The process above indicated is repeated many times, probably ere the first traces of actual structure with capacity to act are to be detected. Nay, the tissue which is at last formed, and which acts, exhibits structure; but this first tissue only serves a temporary purpose, and differs in its characters from the permanent texture which is at length formed. Thus the first muscular tissue, for example, which is produced in the mammalian embryo, lasts only for a short time, and it is entirely replaced

* Protoplasm. Third edition, p. 340.

by a form of contractile tissue which differs materially from it in structural arrangement and in mode of growth. The formation of cartilage, bone, nerve-tissue, glandular and other organs, illustrates the same fact.

But formed material—whether its structural character be simple or complex, or its function be low or exalted, and exerted only temporarily or throughout life—results from changes in bioplasm. I propose, therefore, now to consider the actual change from bioplasm to formed matter, and then I shall advert to the powers and properties of the particles of the bioplasm which succeed one another, series after series, or generation after generation, as long as the development of tissue continues.

The production of formed material may be studied in the early development of any of the tissues, and, in many of them, at any period of life. Epithelium, muscle, nerve, certain forms of fibrous tissue, are being produced from bioplasm at every period of life, and changes of the same order as those by which the first formation of tissue is provided for may be observed. In all cases the newest formed material is that which is nearest to the living matter. This formed material is pushed out, and a more recent formation occupies the space between it and the bioplasm. Gradually the formed material loses water, becomes firmer, and slowly undergoes other alterations, until it assumes its characteristic form and begins to fulfil its proper function. In some cases, as I have already remarked, the bioplasm actually moves onwards, leaving the formed material, which it has produced, behind it. I have described this phenomenon as it occurs in certain forms of yellow elastic tissue and muscle, in which tissues the thickening of the fibre can be clearly seen to be due to the formation of new material by the bioplasm as it moves over the surface of the fibre already formed. The new matter is soft, and does not at first exhibit the peculiar characteristics of the tissue.

But however long a period may elapse before the formed matter assumes its characteristic peculiarities and becomes functionally active, its characters, its properties, and its chemical composition mainly depend upon the changes which occurred just at the moment it ceased to be bioplasm. The elements entering into its composition must have been arranged in a definite way, while they were yet bioplasm, so that they were certain to combine in the manner required at the time when they assumed the condition of formed material. If, then, we desire to discover the true cause of the formation of tissue, we must search for it in the bioplasm ere formation occurs. Some of the elements of the living matter combine to produce the formed material, while others combine to form gaseous or solid substances which escape or are carried away dissolved in fluid. That which determines the combination—that which causes the elements to unite so as to produce the definite matter or the tissue—is the *cause* of its formation.

According to my idea—which, however, may be considered by some very unphilosophical—there is something operating in each kind of bioplasm which in fact determines the kind, by virtue of which the living matter *must* grow and *must* produce formed material of a certain character, if only it be supplied with pabulum, and be placed under certain conditions. This something is, I believe, a power or force which the bioplasm has derived from pre-existing bioplasm—a force or power which has been transmitted onward, perhaps for ages, with or without variation. Conditions may indeed modify the action of this power within certain limits, or may prevent its action altogether; but that the action results from the power, and ought not to be attributed to the conditions, is obvious from the fact that one form of bioplasm exposed to the conditions favourable to the developmental phenomena belonging to another kind will not be so influenced as to exhibit these phenomena.

The characters of previous generations are indelibly stamped upon every individual belonging to each generation; and these inherited characters can be transmitted by the bioplasm only. In fact, is not the "nature or constitution of the organism" the nature or constitution of the bioplasm out of which the organism is formed? It may still be asked whether all generations were potentially included in the first?—and whether the germs of all were included one within the other from the first creation, as Leibnitz thought—each being containing the germs of its successors one within the other, which were thrown off one after the other, as envelope might be removed from envelope? Such questions must now be regarded from a point of view different from that from which they have been considered hitherto. The study of the characters and properties of the bioplasm will open out new lines of inquiry, more particularly with reference to the powers by virtue of which all formation takes place.

Those peculiarities of external form and of external and internal structure and action, in which one species differs from all others, must also be attributed to the vital phenomena of the bioplasm. In like manner, the power of origination and handing down of newly acquired properties and characters is limited to bioplasm. Bioplasm is the agent concerned in the transmission of all hereditary structural peculiarities. Nay, this living matter alone can inherit, and whatever it inherits comes from bioplasm. There is nothing in the non-living world, it need scarcely be remarked, that presents any analogy with this marvellous power of inheriting from predecessors definite characters and transmitting them to those that succeed. All will accept Mr. Darwin's conclusion that, whenever variation occurs, the cause of variation must be attributed to something in the "nature or constitution of the organism"—or, as I venture to think, we may say with still greater accuracy, to something in the nature or constitution of the bioplasm from which the organism is developed. This cause of variation must, as it seems to me, be very closely related to the cause of the formation of tissue by bioplasm, and is in its nature *vital*—not *physical*.

The *vital powers* to which the special constructive peculiarities of bioplasm ought to be attributed are, however, not admitted by all. It has been truly remarked that the embryo of the common fowl, for example, will not be formed unless the egg be exposed for a definite period to the influence of a temperature which may vary only within a very limited range. The necessity of this condition has led some to regard the heat as the efficient cause of development, and it has even been maintained that the physical *heat* undergoes conversion into the non-physical *life*. The matter in the peculiar living state out of which the embryo was formed has been regarded as ordinary matter, which, possessing only ordinary material properties, underwent, as the saying is, certain peculiar "differentiations," or which "differentiated itself" into the tissues and organs and actions constituting the chicken. No such conclusion as to the forming or creating powers of any external physical agencies is, however, in the present state of knowledge, to be justified.

The early changes in development require a considerable *time* for their completion, but the laws by which varying rates of growth in different living forms are governed or determined have not been discovered. Although wonderfully little pabulum is taken up, and but a small quantity of matter undergoes change, phenomena of paramount importance proceed, and time is very necessary for the completion of these early changes in all organisms, and especially, of course, in those that are complex. In vegetable organisms the time that must elapse between the completion of the formation of the seed and its germination varies very much, as also the periods of time during which the seeds of different plants will retain their vitality, and this must depend upon inherent properties of the bioplasm. So also with respect to the periodical rests from growth, the greatest individual differences are noticed. Inherent vital peculiarities also manifest themselves in cases in which a moderate rise of temperature is far more damaging to the vital phenomena of the normal bioplasm than a corresponding fall. If the average temperature be a little above or below that which is adapted for the growth and development of certain creatures, the organism soon begins to suffer, and many tissues, although they may be formed, never attain the most perfect construction possible, or their highest functional activity, and probably they begin to deteriorate long before those of corresponding organisms which are developed under the particular conditions suited to their special vital phenomena. But is there not something very remarkable in the fact of the existence of powers or properties in the several kinds of bioplasm, by virtue of which each seems to grow and flourish only within its own particular range of temperature? A fall of a few degrees in the average temperature will ensure the destruction of some organisms, a slight rise maintained for a time that of others. We cannot even lay it down as a law that a low temperature is necessarily destructive of vital

action, for there are organisms which flourish at or below the freezing-point of water. In short, the various forms of bioplasm have their individual peculiarities and characteristics, which they inherit and may transmit, and which are not to be accounted for by physics, and which seem in truth to belong to their constitution. Conditions which are life to some forms of bioplasm are death to others. We may speculate as to the origin of these individual peculiarities which characterise the different forms of living beings, but we cannot at present expect to determine how they have arisen or whence they have been derived in the first instance.

Some are content to be assured and have faith enough to believe that peculiarities from time to time originate, and that their fortunate possessors gain thereby great advantage, so that they are enabled to overcome their less fortunate brethren, and even to utterly exterminate them. A never-ending scramble for mastery seems to be regarded by philosophical naturalists as an essential factor in the origin of species. Success in the perpetual life-struggle falls to the lot of the strongest, or the most cunning, or to those blessed with some other fighting or out-lasting quality, the origin of which is to be traced, it is said, to some slight deviation from the ordinary upon the part of one of a vast number of organisms of the same kind, which gives to that one the advantage of an offspring certain to survive the offspring of the less fortunate multitude. Being the fittest to live, the few soon predominate. Bioplasm, with the newly-acquired properties, transmits the peculiarities to that which descends, until bioplasm, capable of producing an organism still more fit, somehow results. The organisms derived from this then prevail, and enjoy the advantage of living and continuing the race. So the experiment is supposed to proceed. Whether or not new constructive power is thus acquired by bioplasm, the existence of wonderful powers in relation with the bioplasm is proved by the fact of the formation of tissues in the new organism having the individual characteristics of those of its progenitor, at a time long after the bioplasm mass was produced and detached from the organism that formed it.

TRAUMATIC POPLITEAL ARTERIO-VENOUS ANEURISM TREATED SUCCESSFULLY BY LIGATURE OF THE POPLITEAL ARTERY AND VEIN.

BY THOMAS ANNANDALE, F.R.S.E.,
SURGEON TO THE EDINBURGH INFIRMARY, AND LECTURER ON CLINICAL SURGERY.

PETER R——, aged ten, was admitted into my wards in the Edinburgh Royal Infirmary on the 28th of October, 1874. Three months before admission he received a wound in the popliteal space from the point of a pair of scissors. Blood poured from the wound in a large stream, but a jacket bound round the knee and wound partially checked the bleeding, and a woman supposed to possess some medical knowledge being sent for, a bandage was applied by her and the hæmorrhage completely stayed. Three days after the accident the bandage was removed, and no bleeding followed, but a small swelling was observed in the region of the wound. The advice of a schoolmaster being taken at this stage of the case, poultices were applied on his recommendation, and were continued for some days, until a small piece of "dead flesh" had come away. After this tincture of myrrh was applied to the wound, which soon healed soundly. The swelling was observed to beat quite distinctly, and caused him much pain during both the day and night. His leg was often cold, and he was glad to get up at night and warm it at the fire, as heat always relieved him. After the first few days following the accident the patient was allowed to go about, and one month after the injury he went to visit a relative at some distance, and was walking for nearly a whole day. The swelling had been very slowly increasing; but one month ago, after receiving a kick over the same region from a donkey, a more rapid increase in its size took place, and, for the first time, he was seen by a medical man, who advised him to come into the infirmary.

When admitted, a swelling the size of an infant's head, and of an irregular shape, occupied the popliteal space, and passed upwards for a short distance along the posterior aspect of the thigh. The swelling was seen to pulsate, but not very forcibly; and when the hand was placed over it, the characteristic aneurismal expansion could be felt on all its aspects. No peculiar thrill could be felt in the swelling. Pulsation was absent in the anterior and posterior tibial arteries at the ankle. At one point the swelling was very prominent, and the skin over this point was thinned and discoloured.

The case being diagnosed as one of traumatic aneurism of the popliteal artery, it was decided to treat it by laying open the sac and tying the artery above and below the wound.

On the next day—the 29th of October—I proceeded to operate in the following manner. A tourniquet being applied to the femoral artery in the upper part of the thigh, I made a small incision into the centre of the sac, sufficiently large to admit my forefinger. My reason for making this limited opening in the first instance was, that I could, if necessary, restrain any hæmorrhage until the finger had made an examination of the sac and separated any adherent clots. I learned the value of this practice in assisting the late Mr. Syme in most of his serious operations on large aneurisms. Having searched the sac with my finger, I gradually withdrew it so as to lay the whole cavity open, but on doing so free bleeding took place, and, as it seemed probable that this hæmorrhage was coming from the distal end of the wounded artery, an elastic ligature was applied round the upper part of the leg, the finger being kept in the wound as a plug in the meantime. The sac was then opened freely by a wound about five inches in length, and all the blood and clot in it sponged out. There was not very much clot, the contents consisting principally of fluid arterial blood. By this proceeding two openings were clearly exposed at the bottom of the sac. These openings were parallel to one another at a distance of about an eighth of an inch in the longitudinal direction of the limb. They were both about a quarter of an inch in length, and had the appearance of slits with little gaping of the edges. A probe passed into each opening determined the fact that one communicated with the canal of the popliteal artery, and the other with that of the popliteal vein. The canals of both vessels were pervious as far as the probe would pass above and below the wounds. The sac of the aneurism was well formed, circumscribed, and white and smooth on its inner surface. The popliteal artery, being carefully cleared by dissection for a short distance, was ligatured above and below the wound with prepared catgut; and the popliteal vein, being cleared in the same way, was also ligatured above and below the wound with the same material. The tourniquet and elastic ligature were now removed, and a small artery and vein which bled, in the region of the wounded vessel, were tied also with catgut. A drainage-tube was then introduced into the cavity, and antiseptic muslin was applied in the usual way, after the edges of the wound had been stitched together. The whole operation was performed under the antiseptic spray.

On Oct. 30th the report is that the patient had passed a good night. There was slight œdema of the foot, but the temperature of the limb was good.

On Nov. 1st a small piece of discoloured clot with a few drops of purulent fluid escaped from the wound. The temperature of the limb was good, and the cavity of the wound was contracting. No pulsation had as yet been felt in the tibial arteries at the ankle. The œdema of the foot was less.

On Nov. 8th the superficial portion of the wound was healed except where the drainage-tube was inserted. The cavity was contracting rapidly, and there had been no more purulent discharge. All the sutures were removed.

On Nov. 17th the drainage-tube was removed, the cavity having contracted. There was only a small superficial sore where the tube had been introduced.

On Nov. 26th the antiseptic dressing was removed, and solution of boracic acid applied to the small sore which remained. There was still a slight œdema on the side of

woman so conducting herself is suffering from a contagious disease which she may communicate to others having relations with her, they cannot in any way interfere to prevent it. This woman, when unable any longer (in consequence of the severity of her disease) to follow her miserable calling, has no other resource (prostitution failing) to procure her a livelihood than to fall back on the foul wards of a workhouse. A *protected district* is one where, if a woman, instead of continuing wholly or in part to gain an honest livelihood, walks the streets soliciting different men, and consequently comes under the cognisance of the police as being a common prostitute, the British Legislature has determined that in certain garrison towns such a woman, after being repeatedly warned, and still persisting in a life of prostitution, shall submit to a medical examination on the ground that, should she be diseased, she would communicate a contagious complaint to those having relations with her. It is further enacted that, if the woman be found diseased, she shall be at once sent to hospital, and not allowed to leave till she is, in the opinion of the surgeon, perfectly cured. If then desirous of abandoning her evil course, the girl is relieved from further surveillance, and will be sent to her friends at the Government's expense. If, on the other hand, a common woman, on being discharged from hospital and released altogether from the operation of the Acts, return to a protected district, and is again found by the police acting as a public prostitute, she must again be registered. In every case the authorities wish it to be clearly understood that they do not sanction or authorise prostitution; they only watch over it, from their anxiety to prevent its worst evils and ameliorate the condition of the women and check disease."] In the year 1846, and again in 1860, Mr. Acton brought the subject before this Society, and called the attention of the profession to the fact that, whereas the French and Belgian troops seldom suffered from venereal affections, British soldiers were affected with this contagious disease in the proportion of 181 per 1000, or one in every five men.

During the autumn of 1874 he determined to again visit the continent, and judge for himself what was the present condition of syphilis among the French and Belgian population; so that on his return he might be able to again make a comparison between the three cities, and judge what influence continental police regulations had had in checking, preventing, or stamping out this contagious disease. He ventured to remind the fellows of some of the great general laws which regulate syphilis, and which hospital surgeons no doubt are familiar with. 1. *Syphilis is a very widespread affection* in England, both among male and female adults; rendering inefficient large numbers of our troops, as shown in the last army returns, where it is stated that, in the year 1872 (the last report published), primary syphilis in the unprotected districts was still so prevalent as to yield 123 per 1000. Probably one-half of the London prostitutes suffer from some form of contagious disease. 2. *As regards the severity of the disease*, he thought the complaint was less severe than formerly. The authorities in the City hospitals in this respect agree with him, and attribute this to the efficacy of the Contagious Diseases Acts at present in operation at Greenwich and Woolwich—a source formerly of much frightful disfiguration. The non-Government side of the Lock Hospital demonstrates that, among the in-patients, syphilis in women is still a very serious complaint. 3. *That primary syphilis is a highly contagious affection* no one can doubt. The laws which it follows are now clearly known; and experience has shown that for its extension, dissemination, or outbreak, absolute contact is necessary. This being avoided, the disease can be controlled, as the primary manifestations cannot be communicated through the air, or by the usual vehicles of infection. Nor does it ever arise *de novo*; and, unlike some other epidemics, it is traceable to communication from some person previously affected. 4. *Syphilis can be prevented and stamped out.* Mr. Acton stated that, if he had carried his hearers with him in the acceptance of the previous proposition, they must agree with him that the best way of prevention consists in offering men, who have exposed themselves to infection, a ready means of ablution; and the army authorities have now done this. The next broad principle is as speedily as possible to destroy the local forms of contagion, so as to prevent extension of the disease, and to warn the male patient against infecting others. The institution of hospitals, free or otherwise, where the already infected may at once apply, is another valid and important means of prevention. Experience in all countries has determined that the mere treatment of these women as out-patients is a vain delusion. What we require is, that, by segregating prostitutes as soon as diseased, we should at once prevent them contaminating others. To do this effectually, legislative measures have been necessary, and the women must not be allowed to leave the hospital till entirely cured. Wherever this has been done it has succeeded without exception in all countries and among all classes. Those who are sceptical on this point are referred to the instances of Hong-Kong and Dartmouth, where the disease has been reduced to a minimum.

Having made these preliminary observations, the author proceeded to describe his continental experience. The first city he visited was Brussels, at which place he attended the wards of the Military Hospital. There were only three cases of syphilis among the private soldiers, and among the non-commissioned officers he only saw two instances of men recovering from primary syphilis, and these were out of a body of troops amounting to 3500 men. There were only nine women confined in hospital in consequence of venereal disease, showing that in Brussels the police regulations have nearly stamped out the disease. Proceeding to Paris, Mr. Acton, in visiting the French Military Hospital, could only discover six cases of primary disease, and eight cases of secondary syphilis—fourteen cases in all among the 3841 men forming the garrison of Paris, these cases being treated at the infirmary, and held too slight to be admitted into hospital. Attending at the Prefecture of Police during the examination of women avowedly giving themselves up to prostitution, he found the forms of disease to be very slight, and the number of women examined small—a decrease which he attributed to the police regulations. Mr. Acton gave a table, showing that in the St. Lazare Hospital he could find only twenty-three cases of primary disease out of 202 patients confined in this institution, which is specially given up to the surveillance of the police. This small number, however, would have been sufficient to have inoculated the garrison of Paris had they been allowed to remain at large. He called attention to the fact that medical men in Paris assert that the British traveller, like the English sailor in French harbours, is the source of much of the syphilis to be met with in France; and that the disease would ere now have been stamped out had it not been that England and other unprotected countries are constantly flooding France with fresh cases of primary contagious disease, interfering much with its sanitary *cordon*.

Returning to London, Mr. Acton personally attended the hospital of the Foot Guards; here he found disease in proportions he was unprepared for. There were 24 cases of primary disease among 408 single men in the 2nd battalion of Coldstream Guards quartered in London. In the 1st battalion of the Scots Fusilier Guards Mr. Acton was shown 25 cases of severe forms of syphilis among 505 unmarried men. The total strength of these battalions being 668 and 665 respectively, the proportion of cases of syphilis among the 1333 men was 1 in 27; and to obviate the objection that these comparisons were founded on insufficient data, Mr. Acton gave a table, extending over twelve months, in which were shown the syphilitic affections of upwards of 3000 men in the Foot Guards quartered in London. One-fifth of the whole, or one man in five, was affected with primary syphilis during the last year—1874; and he contended that as there were five battalions of Foot Guards quartered in London, it may be said that *one* out of the battalions suffered from primary syphilis. Now, judging from the experience of private practice, this battalion of sick, composed of 600 men, must have been incapacitated from duty for at least six weeks or two months. It is almost equally certain that 164 of these men had relapses of secondary symptoms, further incapacitating them for duty for another two months at least; during which time they must necessarily have taken mercury, leaving the constitution of the men very much debilitated, and liable to relapses during the subsequent years. Comparing the syphilitic affections of the Foot Guards with those found in French soldiers quartered in Paris, Mr. Acton showed that a single battalion of 500 men presents more disease than the 3841 troops composing the French garrison. He next called attention to the severity and frequency of the disease among the women in London as compared with those in Paris, contrasting for this purpose

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action, for there are organisms which flourish at or below the freezing-point of water. In short, the various forms of bioplasm have their individual peculiarities and characteristics, which they inherit and may transmit, and which are not to be accounted for by physics, and which seem in truth to belong to their constitution. Conditions which are life to some forms of bioplasm are death to others. We may speculate as to the origin of these individual peculiarities which characterise the different forms of living beings, but we cannot at present expect to determine how they have arisen or whence they have been derived in the first instance.

Some are content to be assured and have faith enough to believe that peculiarities from time to time originate, and that their fortunate possessors gain thereby great advantage, so that they are enabled to overcome their less fortunate brethren, and even to utterly exterminate them. A never-ending scramble for mastery seems to be regarded by philosophical naturalists as an essential factor in the origin of species. Success in the perpetual life-struggle falls to the lot of the strongest, or the most cunning, or to those blessed with some other fighting or out-lasting quality, the origin of which is to be traced, it is said, to some slight deviation from the ordinary upon the part of one of a vast number of organisms of the same kind, which gives to that one the advantage of an offspring certain to survive the offspring of the less fortunate multitude. Being the fittest to live, the few soon predominate. Bioplasm, with the newly-acquired properties, transmits the peculiarities to that which descends, until bioplasm, capable of producing an organism still more fit, somehow results. The organisms derived from this then prevail, and enjoy the advantage of living and continuing the race. So the experiment is supposed to proceed. Whether or not new constructive power is thus acquired by bioplasm, the existence of wonderful powers in relation with the bioplasm is proved by the fact of the formation of tissues in the new organism having the individual characteristics of those of its progenitor, at a time long after the bioplasm mass was produced and detached from the organism that formed it.

TRAUMATIC POPLITEAL ARTERIO-VENOUS ANEURISM TREATED SUCCESSFULLY BY LIGATURE OF THE POPLITEAL ARTERY AND VEIN.

BY THOMAS ANNANDALE, F.R.S.E.,
SURGEON TO THE EDINBURGH INFIRMARY, AND LECTURER ON CLINICAL SURGERY.

PETER R——, aged ten, was admitted into my wards in the Edinburgh Royal Infirmary on the 28th of October, 1874. Three months before admission he received a wound in the popliteal space from the point of a pair of scissors. Blood poured from the wound in a large stream, but a jacket bound round the knee and wound partially checked the bleeding, and a woman supposed to possess some medical knowledge being sent for, a bandage was applied by her and the hæmorrhage completely stayed. Three days after the accident the bandage was removed, and no bleeding followed, but a small swelling was observed in the region of the wound. The advice of a schoolmaster being taken at this stage of the case, poultices were applied on his recommendation, and were continued for some days, until a small piece of "dead flesh" had come away. After this tincture of myrrh was applied to the wound, which soon healed soundly. The swelling was observed to beat quite distinctly, and caused him much pain during both the day and night. His leg was often cold, and he was glad to get up at night and warm it at the fire, as heat always relieved him. After the first few days following the accident the patient was allowed to go about, and one month after the injury he went to visit a relative at some distance, and was walking for nearly a whole day. The swelling had been very slowly increasing; but one month ago, after receiving a kick over the same region from a donkey, a more rapid increase in its size took place, and, for the first time, he was seen by a medical man, who advised him to come into the infirmary.

When admitted, a swelling the size of an infant's head, and of an irregular shape, occupied the popliteal space, and passed upwards for a short distance along the posterior aspect of the thigh. The swelling was seen to pulsate, but not very forcibly; and when the hand was placed over it, the characteristic aneurismal expansion could be felt on all its aspects. No peculiar thrill could be felt in the swelling. Pulsation was absent in the anterior and posterior tibial arteries at the ankle. At one point the swelling was very prominent, and the skin over this point was thinned and discoloured.

The case being diagnosed as one of traumatic aneurism of the popliteal artery, it was decided to treat it by laying open the sac and tying the artery above and below the wound.

On the next day—the 29th of October—I proceeded to operate in the following manner. A tourniquet being applied to the femoral artery in the upper part of the thigh, I made a small incision into the centre of the sac, sufficiently large to admit my forefinger. My reason for making this limited opening in the first instance was, that I could, if necessary, restrain any hæmorrhage until the finger had made an examination of the sac and separated any adherent clots. I learned the value of this practice in assisting the late Mr. Syme in most of his serious operations on large aneurisms. Having searched the sac with my finger, I gradually withdrew it so as to lay the whole cavity open, but on doing so free bleeding took place, and, as it seemed probable that this hæmorrhage was coming from the distal end of the wounded artery, an elastic ligature was applied round the upper part of the leg, the finger being kept in the wound as a plug in the meantime. The sac was then opened freely by a wound about five inches in length, and all the blood and clot in it sponged out. There was not very much clot, the contents consisting principally of fluid arterial blood. By this proceeding two openings were clearly exposed at the bottom of the sac. These openings were parallel to one another at a distance of about an eighth of an inch in the longitudinal direction of the limb. They were both about a quarter of an inch in length, and had the appearance of slits with little gaping of the edges. A probe passed into each opening determined the fact that one communicated with the canal of the popliteal artery, and the other with that of the popliteal vein. The canals of both vessels were pervious as far as the probe would pass above and below the wounds. The sac of the aneurism was well formed, circumscribed, and white and smooth on its inner surface. The popliteal artery, being carefully cleared by dissection for a short distance, was ligatured above and below the wound with prepared catgut; and the popliteal vein, being cleared in the same way, was also ligatured above and below the wound with the same material. The tourniquet and elastic ligature were now removed, and a small artery and vein which bled, in the region of the wounded vessel, were tied also with catgut. A drainage-tube was then introduced into the cavity, and antiseptic muslin was applied in the usual way, after the edges of the wound had been stitched together. The whole operation was performed under the antiseptic spray.

On Oct. 30th the report is that the patient had passed a good night. There was slight œdema of the foot, but the temperature of the limb was good.

On Nov. 1st a small piece of discoloured clot with a few drops of purulent fluid escaped from the wound. The temperature of the limb was good, and the cavity of the wound was contracting. No pulsation had as yet been felt in the tibial arteries at the ankle. The œdema of the foot was less.

On Nov. 8th the superficial portion of the wound was healed except where the drainage-tube was inserted. The cavity was contracting rapidly, and there had been no more purulent discharge. All the sutures were removed.

On Nov. 17th the drainage-tube was removed, the cavity having contracted. There was only a small superficial sore where the tube had been introduced.

On Nov. 26th the antiseptic dressing was removed, and solution of boracic acid applied to the small sore which remained. There was still a slight œdema on the side of

the foot on which the limb rested. Pulsation in the tibial arteries remained absent.

On Dec. 1st the wound was quite healed, and the patient was allowed to leave his bed, and go about the ward on crutches. There was a little weakness of the foot, but the knee-joint and limb were perfectly movable and strong.

On Dec. 26th the patient walked freely without support on the affected limb, the foot of which still remained somewhat weak.

Remarks.—The case just reported is one of great importance in connexion with the surgery of the bloodvessels. The absence of the peculiar thrill which has always been considered diagnostic of arterio-venous aneurism is a point of interest. Had the operation not so distinctly disclosed the presence of a wound in both artery and vein, I and those who saw the case would have looked upon it as one of *traumatic aneurism of the popliteal artery*. The reported cases of traumatic arterio-venous aneurism of the large arteries are not numerous, but in most of these, as far as I can ascertain, this symptom was observed, and directed attention to the true nature of the case. An examination of the wounded popliteal vein, made at the time of the operation, did not discover any appreciable dilatation of its canal, such as has usually been noticed in arterio-venous aneurism, and therefore I am inclined to think that, although a wound in both artery and vein communicating with the aneurismal sac existed, there was little or no communication through these wounds between the arterial and venous circulation. This conjecture may be explained by the longitudinal direction of the wound in the vein, and its position in regard to the corresponding wound in the artery. Be the explanation what it may, the fact of the absence of the peculiar thrill in this instance must be considered as quite exceptional in connexion with arterio-venous aneurism.

The most instructive part of this case is a consideration of the treatment which was successfully adopted. Mr. Holmes,* in his very valuable lectures on this subject, directs attention to the methods of treatment which have been employed in cases of arterio-venous aneurism of the femoral vessels. These methods may be enumerated as (1) ligature of the artery after the Hunterian plan, (2) compression, (3) ligature of the artery above and below the sac without opening the latter, (4) laying open the sac and tying the artery above and below the wound, the vein not being interfered with.

A consideration of the treatment of the reported cases of arterio-venous aneurism shows that the *first* of these operations has proved most unsatisfactory; that the *second*, when it can be applied accurately, so as to cause obliteration of the venous communication, has proved and is likely to be useful; that the *third*, although it has proved successful,† is only applicable in certain cases, and necessitates a difficult dissection; that the *fourth*, although it has proved successful,‡ is attended with great risks—(1) from venous hæmorrhage, (2) from purulent absorption.

The method employed in the case related has, as far as I am aware, never before been practised, but it is only just to state that Mr. Holmes,§ in his remarks, suggests the advisability of this proceeding, and refers to instances where both arteries and veins have been obstructed or ligatured without bad consequences following.

The result of the operation in my case tends to prove that surgeons have taken a too serious view of the risks likely to follow the ligature or obstruction of the principal artery and vein of a limb. One principle in all former operations for the relief of arterio-venous aneurism has been to avoid any interference with the vein, but this case has now practically demonstrated that both artery and vein may be successfully ligatured.

Should carefully-applied compression fail to relieve an arterio-venous aneurism, my recent experience inclines me to advocate the operation performed in the present instance, provided the case be one otherwise suitable for an operation.

The advantages of this plan are, in my opinion, (1) certain closure of the openings of communication in both artery and vein; (2) absence of any risk from venous hæmorrhage or absorption in connexion with the wounded vein; (3) its practicability in the large majority of cases; (4) its easy performance without much dissection.

By the employment of the antiseptic treatment in the present case, all local irritation in connexion with the sac and wound was prevented, and suppuration was limited to the single discharge of a few drops of innocent pus.

In consequence of these facts, I consider myself justified in attributing to this treatment much of the success of the case, and I would therefore recommend its adoption with great confidence in this class of operation.

Edinburgh.

* THE LANCET, October 17th, 1874.
† Mr. Spence's case (Lectures on Surgery, p. 625).
‡ See Mr. Holthouse's case (British Medical Journal, May 7th, 1859).
§ Loc. cit.

CASE OF

PHTHISIS TREATED BY PHOSPHORATED COD-LIVER OIL.

BY JOHN C. THOROWGOOD, M.D., F.R.C.P.,
PHYSICIAN TO VICTORIA-PARK HOSPITAL FOR DISEASES OF THE CHEST, ETC.

MR. F——, aged twenty, had in his boyhood suffered from disease in the bones of the leg; fragments of bone had from time to time become detached, and the apertures had, after many months, cicatrised, and remained so to the date given below.

In March, 1869, I saw this gentleman in consequence of a troublesome cough, attended with copious yellow expectoration every morning, often mixed with florid blood. His pulse was 100; his tongue white; and he looked pale and emaciated. Left chest resonant; respiration full and strong. Right apex: impaired resonance, strong bronchial breathing and bronchial voice; behind, crepitant râle is heard at supra-spinous fossa. Ordered to take two drachms of Savory and Moore's phosphorated cod-liver oil* three times a day, and a tonic mixture of quinine with dilute phosphoric acid.

He was not seen again till January, 1870. At that date he said he had scarcely any cough, and had gained in flesh and weight. Pulse 104. Left chest normal. Right apex dull, with bronchial respiration at infraclavicular region, and slight crepitant râle behind. He had taken a few bottles of the quinine tonic, and had continued the phosphorated oil, with occasional intervals.

He went on well till June, 1871, when I was called to him at his home in the country in consequence of severe hæmoptysis; being away from town I did not, however, see him till September, 1871, when he came to me. The hæmoptysis continued for some time, and he was attended by Mr. R. Perrey, of Marden. When I examined him I found the physical signs not much changed. Crepitation was distinct and limited to right apex. He was ordered some tincture of iron, but this made him feverish, and caused a return of the bleeding; it was therefore stopped.

In December, 1872, I again saw him, and from this time up to March, 1873, he was feverish, pulse often 120, temperature in mouth 101°, much shortness of breath, loss of appetite, expectoration, and occasional hæmoptysis.

On examining the chest (March, 1873), there were cavernous breathing, loose crepitation after cough, pectoriloquy, and "crack pot" note, all as well-marked signs, in right upper third of chest. He was now taking the phosphorated oil, and no other medicine. The physical signs being so strictly limited to the right upper third, I considered that a deposit had softened here, and that this process had caused the rise of temperature, and other symptoms. There seemed no sign of mischief in the left lung, and I advised the continuance of the oil, and perfect rest at home. The quinine and phosphoric acid were again administered.

June 1st, 1873.—Pulse 100; cough much less; appetite good; much less crepitation in right chest; left normal. Finds the phosphorated oil agree well, and he desires to continue it. Recommended to go to Harrogate, and take a tonic of nitric acid and cascarilla.

Sept. 19th, 1873.—Returned from Harrogate, where he gained 8 lb. in weight during seven weeks. Cough much less; pulse 92. Says he does not get nearly so hot as he

* Containing one-fifth of a grain of phosphorus in the ounce.

did. On examining the chest, the eye is struck by the falling-in of the chest-wall on the right side; dry, hollow breathing is heard over the flattened part. Has left off the oil for some weeks; but is now to resume it again in doses of four drachms twice daily.

March, 1874.—Slight crackling after cough in right chest; pulse 100. Apparently a cold has set up a little irritation there.

June.—Complains only of slight morning cough, and has continued in good health up to the present date.

The case seemed to me of interest in connexion with the antecedent bone disease. This got quite well, and then signs of a deposit appeared at the right apex. Congestion of the apex was induced, with hæmoptysis, and eventually breaking down of the deposit, with a cavity as the result. This cavity appears to have contracted; and thus the patient has got into, what appears to all, a very good state of health.

The treatment was by no means complicated. Iron, whenever tried, seemed to do no good; but the liking acquired for the phosphorated cod-liver oil was very marked, and I was surprised at the persistence with which it was taken without any nausea resulting. To the use of this oil and to the effect of the dry tonic air of Harrogate, after inflammatory symptoms had subsided, I attribute the recovery.

Welbeck-street, W.

ON THE

USE OF A STYLE IN OBSTRUCTIONS OF THE LACHRYMAL APPARATUS.*

BY JOHN A. NUNNELEY, M.B. LOND.,

SENIOR OPHTHALMIC AND AURAL SURGEON TO THE LEEDS GENERAL INFIRMARY.

IT is not my purpose now to speak of affections of the lachrymal apparatus in general, but only of one method of treatment of those diseases of the sac or nasal duct in which dilatation of the latter by mechanical means is necessary.

The difficulty formerly experienced in dealing with such cases is sufficiently shown by the great variety of probes of metal and catgut, of many shapes, and to be used in various ways, and of styles, and tubes, and other mechanical appliances, which were devised, often with great ingenuity, with the object of dilating and keeping open the nasal duct. Except the simple style, introduced through the skin and the anterior wall of the lachrymal sac, these contrivances failed more or less in their object, and were abandoned. In many respects the treatment by the style was satisfactory enough. It had, however, some objections: its appearance was unsightly, it was liable to fall out or be dragged out in various ways, and after its removal in some instances the opening which was left refused to heal, and a lachrymal fistula was the result. Since the general introduction of the very simple and admirable operation of division of the canaliculus into the lachrymal sac, devised by Mr. Bowman, the description of which was published in the Transactions of the Royal Medico-Chirurgical Society for 1851, the treatment of cases of epiphora, depending upon displacement of the puncta or obstructions of the canaliculi or nasal duct, has been reduced to narrow limits, this plan presenting such conspicuous advantages as to have been almost at once generally adopted. By it the sac and nasal duct can be reached and treated through the natural passages, without external wound. The advantages gained by this mode of procedure are many, and its disadvantages few. The latter are, mainly, that in order to keep open the wound along the canaliculus, which has been divided, it is necessary to pass a probe along it several times, or the incision will close (as it frequently does unless considerable care be taken); again, the probe must be passed through the nasal duct at intervals, longer or shorter according to the nature of the stricture. All this involves, of course, considerable pain, and is more or less tedious, usually requiring several attendances on the part of the patient, so that there is oftentimes difficulty, both in public and private practice, in persuading persons to persevere for a sufficient length of time.

These objections may be avoided, and the whole treatment greatly simplified, in most instances, by the use of a form of style introduced some years ago, I believe, by Mr. R. Taylor, surgeon to the Central London Ophthalmic Hospital, and which has scarcely, I think, been adopted so frequently as it deserves. It is highly spoken of by Mr. Haynes Walton, in his work on the "Surgical Diseases of the Eye." This style is a straight piece of silver to fit the nasal duct, having at right angles to it, at the upper end, a small arm about three-eighths of an inch in length; it is introduced along the slit-up lower canaliculus, through the lachrymal sac into the duct. The little horizontal arm lies in the channel of the canaliculus, which it keeps open, and prevents the style from slipping out of sight, allowing ready removal when necessary. I have used it constantly, and with great advantage. The canaliculus is slit up in the usual way, and I then either dilate for a short time with the ordinary probe, and then put in the style, or more generally, where the case is a straightforward one, introduce the latter at once. Different sizes are required. The style requires to be taken out and cleaned occasionally, and if there be any irritation set up by it, which is not common, the removal of it for a day or two is generally sufficient to allow it to be worn with ease, and I find that patients are so comfortable while wearing it that they often neglect to appear at the end of a month or six weeks to have the instrument removed.

When we think of the very fragile bones by which the lachrymal apparatus is formed, and the danger which must always exist lest the passing of an instrument should injure them, or bruise their delicate lining membrane, the consequent swelling of which would increase, instead of lessening the evil, it must be evident that the use of a probe in this situation demands the greatest gentleness. A plan therefore which so much simplifies the instrumental treatment of many of these frequent, painful, and troublesome cases is a real gain.

Leeds.

* Abstract of a paper communicated to the Leeds and West Riding Medico-Chirurgical Society.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

THE ordinary meeting of this Society was held on April 13th, the chair being filled by the President, Sir James Paget. There was an unusually large attendance of fellows and visitors, the latter including a number of well-known army surgeons, many of whom had come from a distance to be present at the reading of the paper of the evening.

The paper read was by Mr. ACTON, "On the Prevalence and Severity of Syphilis among the Troops quartered in London, as compared with the Rarity of the Disease among the Soldiers in the Garrisons of Paris and Brussels; from observations, the result of a personal investigation made during the autumn of 1874." He stated that, on returning to England after the completion of his medical studies in Paris, he was forcibly struck with the severity and the number of cases in an *unprotected* city like London, as contrasted with a *protected* city like Paris. [The following definitions of these terms were then given:—"The term *unprotected district* is meant to include the principal cities of the United Kingdom, where women can practise prostitution in any public thoroughfare at any hour of the day or night, without hindrance, and inveigle men to their homes; and this, too, under the very eyes of the authorities, who are powerless to interfere, unless the solicitation be to the annoyance of any passenger or householder, who must in that case accompany the police to the station to charge the woman with the offence, which is rarely or never done. Should the authorities have credible evidence that the

woman so conducting herself is suffering from a contagious disease which she may communicate to others having relations with her, they cannot in any way interfere to prevent it. This woman, when unable any longer (in consequence of the severity of her disease) to follow her miserable calling, has no other resource (prostitution failing) to procure her a livelihood than to fall back on the foul wards of a workhouse. A *protected district* is one where, if a woman, instead of continuing wholly or in part to gain an honest livelihood, walks the streets soliciting different men, and consequently comes under the cognisance of the police as being a common prostitute, the British Legislature has determined that in certain garrison towns such a woman, after being repeatedly warned, and still persisting in a life of prostitution, shall submit to a medical examination on the ground that, should she be diseased, she would communicate a contagious complaint to those having relations with her. It is further enacted that, if the woman be found diseased, she shall be at once sent to hospital, and not allowed to leave till she is, in the opinion of the surgeon, perfectly cured. If then desirous of abandoning her evil course, the girl is relieved from further surveillance, and will be sent to her friends at the Government's expense. If, on the other hand, a common woman, on being discharged from hospital and released altogether from the operation of the Acts, return to a protected district, and is again found by the police acting as a public prostitute, she must again be registered. In every case the authorities wish it to be clearly understood that they do not sanction or authorise prostitution; they only watch over it, from their anxiety to prevent its worst evils and ameliorate the condition of the women and check disease."] In the year 1846, and again in 1860, Mr. Acton brought the subject before this Society, and called the attention of the profession to the fact that, whereas the French and Belgian troops seldom suffered from venereal affections, British soldiers were affected with this contagious disease in the proportion of 181 per 1000, or one in every five men.

During the autumn of 1874 he determined to again visit the continent, and judge for himself what was the present condition of syphilis among the French and Belgian population; so that on his return he might be able to again make a comparison between the three cities, and judge what influence continental police regulations had had in checking, preventing, or stamping out this contagious disease. He ventured to remind the fellows of some of the great general laws which regulate syphilis, and which hospital surgeons no doubt are familiar with. 1. *Syphilis is a very widespread affection* in England, both among male and female adults; rendering inefficient large numbers of our troops, as shown in the last army returns, where it is stated that, in the year 1872 (the last report published), primary syphilis in the unprotected districts was still so prevalent as to yield 123 per 1000. Probably one-half of the London prostitutes suffer from some form of contagious disease. 2. *As regards the severity of the disease*, he thought the complaint was less severe than formerly. The authorities in the City hospitals in this respect agree with him, and attribute this to the efficacy of the Contagious Diseases Acts at present in operation at Greenwich and Woolwich—a source formerly of much frightful disfiguration. The non-Government side of the Lock Hospital demonstrates that, among the in-patients, syphilis in women is still a very serious complaint. 3. *That primary syphilis is a highly contagious affection* no one can doubt. The laws which it follows are now clearly known; and experience has shown that for its extension, dissemination, or outbreak, absolute contact is necessary. This being avoided, the disease can be controlled, as the primary manifestations cannot be communicated through the air, or by the usual vehicles of infection. Nor does it ever arise *de novo*; and, unlike some other epidemics, it is traceable to communication from some person previously affected. 4. *Syphilis can be prevented and stamped out.* Mr. Acton stated that, if he had carried his hearers with him in the acceptance of the previous proposition, they must agree with him that the best way of prevention consists in offering men, who have exposed themselves to infection, a ready means of ablution; and the army authorities have now done this. The next broad principle is as speedily as possible to destroy the local forms of contagion, so as to prevent extension of the disease, and to warn the male patient against infecting others. The institution of hospitals, free or otherwise, where the already infected may at once apply, is another valid and important means of prevention. Experience in all countries has determined that the mere treatment of these women as out-patients is a vain delusion. What we require is, that, by segregating prostitutes as soon as diseased, we should at once prevent them contaminating others. To do this effectually, legislative measures have been necessary, and the women must not be allowed to leave the hospital till entirely cured. Wherever this has been done it has succeeded without exception in all countries and among all classes. Those who are sceptical on this point are referred to the instances of Hong-Kong and Dartmouth, where the disease has been reduced to a minimum.

Having made these preliminary observations, the author proceeded to describe his continental experience. The first city he visited was Brussels, at which place he attended the wards of the Military Hospital. There were only three cases of syphilis among the private soldiers, and among the non-commissioned officers he only saw two instances of men recovering from primary syphilis, and these were out of a body of troops amounting to 3500 men. There were only nine women confined in hospital in consequence of venereal disease, showing that in Brussels the police regulations have nearly stamped out the disease. Proceeding to Paris, Mr. Acton, in visiting the French Military Hospital, could only discover six cases of primary disease, and eight cases of secondary syphilis—fourteen cases in all among the 3841 men forming the garrison of Paris, these cases being treated at the infirmary, and held too slight to be admitted into hospital. Attending at the Prefecture of Police during the examination of women avowedly giving themselves up to prostitution, he found the forms of disease to be very slight, and the number of women examined small—a decrease which he attributed to the police regulations. Mr. Acton gave a table, showing that in the St. Lazare Hospital he could find only twenty-three cases of primary disease out of 202 patients confined in this institution, which is specially given up to the surveillance of the police. This small number, however, would have been sufficient to have inoculated the garrison of Paris had they been allowed to remain at large. He called attention to the fact that medical men in Paris assert that the British traveller, like the English sailor in French harbours, is the source of much of the syphilis to be met with in France; and that the disease would ere now have been stamped out had it not been that England and other unprotected countries are constantly flooding France with fresh cases of primary contagious disease, interfering much with its sanitary *cordon*.

Returning to London, Mr. Acton personally attended the hospital of the Foot Guards; here he found disease in proportions he was unprepared for. There were 24 cases of primary disease among 408 single men in the 2nd battalion of Coldstream Guards quartered in London. In the 1st battalion of the Scots Fusilier Guards Mr. Acton was shown 25 cases of severe forms of syphilis among 505 unmarried men. The total strength of these battalions being 668 and 665 respectively, the proportion of cases of syphilis among the 1333 men was 1 in 27; and to obviate the objection that these comparisons were founded on insufficient data, Mr. Acton gave a table, extending over twelve months, in which were shown the syphilitic affections of upwards of 3000 men in the Foot Guards quartered in London. One-fifth of the whole, or one man in five, was affected with primary syphilis during the last year—1874; and he contended that as there were five battalions of Foot Guards quartered in London, it may be said that *one* out of the battalions suffered from primary syphilis. Now, judging from the experience of private practice, this battalion of sick, composed of 600 men, must have been incapacitated from duty for at least six weeks or two months. It is almost equally certain that 164 of these men had relapses of secondary symptoms, further incapacitating them for duty for another two months at least; during which time they must necessarily have taken mercury, leaving the constitution of the men very much debilitated, and liable to relapses during the subsequent years. Comparing the syphilitic affections of the Foot Guards with those found in French soldiers quartered in Paris, Mr. Acton showed that a single battalion of 500 men presents more disease than the 3841 troops composing the French garrison. He next called attention to the severity and frequency of the disease among the women in London as compared with those in Paris, contrasting for this purpose

the cases admitted into the Lock Hospital with those he saw in L'Ourcine Hôpital. In the wards of the former he saw 52 cases of syphilis, 22 being secondary of severe type. He considered that one-half of the London prostitutes were diseased; whereas, of those in the protected districts and under the Contagious Diseases Acts, only about 8 per cent. were found affected at the periodical examinations.

Mr. Acton next compared the garrison of Woolwich, which is under the Acts, and where the women are taken care of, and showed the comparative paucity of disease there. It appears that during the years 1871-2-3, 1085 cases of primary syphilis only were treated in hospital out of a garrison of 18,250 men; thus showing that only 1 man is affected out of 17 soldiers in a protected district like Woolwich, instead of 1 in 6 as in London. From a table given, it would appear probable that had the protection offered at Woolwich been afforded to the outlying districts, only 1 man in 34 would have been subject to contract syphilis, as at least one-half of the cases of syphilis were contracted out of the district, bringing it to something like the small proportions witnessed in Paris. That the form of the disease among the women in this protected district was slight was shown by the fact that only 20 out of the 160 beds assigned to these cases were occupied, and all the cases were trivial. Before concluding, the author remarked that when he read his last paper on this subject before the Society, he could only recommend the supervision of prostitutes as an experiment, backed as it then was only by the experience of the continent. Now he could speak of this as an accomplished fact, and one that, as he had shown, had succeeded, in a sanitary point of view, beyond the expectations of its supporters.

The discussion was opened by Dr. DRYSDALE, who began by thanking Mr. Acton for the manner in which he had brought this subject before the Society. He would leave to others the task of dealing with the facts as concerned the army, but must dissent from the author on the question of the comparative immunity from venereal diseases said to be enjoyed by continental towns. He thought, however, that the question of protecting soldiers from syphilis differed from that of the protection of the general population, for, on account of their low scale of wages, soldiers had to put up with the lower classes of prostitutes, who were the ones most easily looked after.—Dr. BIRKBECK NEVINS followed on the same side. He began by quoting the words of the Report of the Royal Commission of 1870, to the effect that "there is no distinct evidence that any diminution of disease amongst the men in the army and navy which may have taken place is attributable to a diminution of diseases contingent upon the system of periodical examination among the women with whom they consort." At that time, however, the Act of 1866 had been but a short time in operation. He then gave the following comparison of the amount of disease before and since the Acts came into force. Gonorrhœa, which fell from 111·6 per 1000 in 1861 to 98·43 per 1000 in 1866, has increased since the Acts 0·31 per 1000; and Dr. Balfour has acknowledged that with regard to gonorrhœa the Acts are a failure. In the navy, at home stations, it has more than doubled in amount, having risen from 20·4 in 1866 to 51·1 per 1000 in 1873. Secondary syphilis in the home army, which fell from 31·26 per 1000 in 1861 to 23·39 per 1000 in 1866, rose 2·87 in 1867, and in 1872 was higher than in 1866, the average of the six years since the Acts being one-twelfth higher than when they were passed. Cases of primary syphilis had fallen about one-eighth, but this was much less than the average yearly fall before the Acts. Thus, in Devonport and Plymouth, the average annual fall, which before the Acts was 10·8 per 1000, after the Acts was but 7 per 1000. In Portsmouth, before the Acts, 15 per 1000; after, 10 per 1000. At Chatham and Sheerness, the average annual fall remained stationary at 4 per 1000, both before and since the Acts. At Woolwich it had diminished from 18 to 3·5 per 1000; at Aldershot from 7 to 3·6 per 1000. At Cork there had been a slight increase in the average annual fall, according to the latest returns, but the disease had never been so low before; the difference was from 10 to 11 per 1000. At Shorncliffe it was 9 per 1000 before, 6 after; at Dover 8 before, 11 after; at Maidstone 60 before, and 21 since. At Windsor the disease has nearly trebled in amount, and at no time since the Acts has it been so low as before the Acts; the great fluctuations in the number of cases in this garrison rendering averages of the annual fall of no value. The like was the case with Canterbury. Colchester, however, stood alone of the fourteen stations in which the average annual fall had notably increased—viz., from 28 per 1000 before the Acts to 51 per 1000 since. In ten stations this fall had been materially checked, in two it had slightly, and in one it had greatly, increased. From these and other statistics he concluded that in the home army *primary syphilis* has not fallen one quarter as fast since the Acts as before it, and that the fall in the home navy is less than in any other station in the world, whilst it has doubled in the Mediterranean. The *constantly sick* fell largely in the army before the Acts, though the proportion cannot be accurately stated. They have scarcely fallen since the Acts in the army, but have fallen one-third in the navy. *Secondary syphilis* fell one-fourth before the Acts, but has risen one-twelfth since in the home army. It has fallen a thirty-ninth in seven years in the home navy. The *constantly sick* from it have risen one-fifth in the home navy, but there are no means of finding its effects in the home army. The *invalided* from it have increased one-twelfth in the army, and risen one-third in the navy. *Gonorrhœa* fell one-eighth before the Acts in the home army, and two-fifths in the home navy; and the *constantly sick* fell one-third in the army. It has doubled in the home and Mediterranean stations in the navy, and has increased in the army; and the *constantly sick* have risen about threefold in the home navy. Lastly, from the Report of the Metropolitan Police it would appear that the amount of disease amongst registered prostitutes had increased 17 per cent; while the number of deaths had just doubled.—Inspector-General LAWSON pointed out that the great fallacy underlying all Dr. Nevins' statistics was, that he only compared the result of single years—e. g., 1866 with 1872. In order to arrive at correct conclusions, the whole course of the prevalence of venereal disease in the army for a number of years must be taken. He exhibited diagrams showing that in stations not under the Acts there was a decrease in the number of cases of primary syphilis from the year 1860 to 1864, then a rise in 1868, a fall in 1870, rising again in 1872, and falling in 1873. It would be easy to take one year before the Acts showing a low rate, and to compare it with a year since the Acts with a high rate; which, indeed, was what Dr. Nevins had done. In fact, in the stations under the Acts there had been no such rise as Dr. Nevins would have us believe. Then there were most remarkable variations, not only between particular stations, but between different parts of the same station at the same time. Thus, during a period of forty-four weeks at Aldershot, in one regiment the rate of admissions was 42 per 1000, in another 84 per 1000, or twice as much, and in a third 124 per 1000; all this at the same time and at the same place. So, again, in another period of thirty weeks, at North Camp, he had found the rate of admissions for venereal disease to be in one regiment 23 per 1000, in another 59 per 1000, and in a third 114 per 1000. The obvious deduction was that there are conditions at work of which we know little at present, and until observations are made extending over a large number of years, and among large bodies of men, all averages must be held of little value. How much less value must be placed upon averages founded upon the returns of isolated years. With regard to secondary syphilis, he had arrived at conclusions different from those of Dr. Nevins. This difference might be due to the fact that previous to 1869 all secondary cases were grouped under the three heads "secondary syphilis," "syphilitic iritis," and "syphilitic cachexia." Possibly Dr. Nevins had not included the two latter heads in his returns. From the army returns, all cases of secondary syphilis in the five years 1863 to 1867 were 34 per 1000; from 1868 to 1872, 25 per 1000. These averages, based upon the statistics of five years, obviated the variations which occur from year to year—for example, in 1864 the average was 35 per 1000, in 1866 it was 28, in 1868 it was 31·6, and in 1869 it was 26 per 1000. Then as to the *discharges* from syphilitic disease, which before 1863 were not separated from other forms of disease, the numbers were from 1863 to 1867, 13·4 per 1000; and from 1868 to 1872, 13 per 1000; this including the years 1869 and 1870, when great reductions were made in the army, and thus many were discharged as unfit for service who at other times would have been retained; for out of the total of 493 in the five years, 243 were discharged in these two years. Those

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under treatment in stations not under the Acts averaged 6·55 per 1000 in 1866, 9 per 1000 in 1869, and 7·8 per 1000 in 1870; while in stations under the Acts the average in 1870 was 4·3 per 1000. From an order issued in April, 1868, medical officers now returned the number of cases of primary venereal affection that were not due to infection within the limits of the protected locality. Thus, at Aldershot, the average number of admissions for primary sore in a period of four years was 66·8 per 1000, but of that number 19 per 1000 were contracted beyond the limits protected by the Acts, thus reducing the number in the protected station to 47·8 per 1000. Further, to get at the exact ratio of the prevalence of disease at Aldershot, those men who were on furlough should be added. Estimating this at 1-24th would raise the number to 49·8. To this must also be added those men who leave before the disease is manifested, and this would raise the number to about 50 per 1000. Gonorhœa, with a total rate of 95 per 1000 in the same four years, might be estimated at 75 per 1000, after the subtraction of 25 for imported cases and the additions as above.—Mr. HOLMES, referring to the Report of the Royal Commission, upon which Dr. Nevins had laid so much stress, explained that at that time there was no sufficient evidence forthcoming since the system of periodical examination had been so recently established, and that although the passage quoted had been allowed to stand, yet it was not without the protest of a large minority, composing all the medical members of the Commission, with the exception of Mr. Holmes Coote, who advocated voluntary hospitals, and Dr. Bridges. The passage, therefore, had but little value, seeing that it was founded upon want of evidence. Adverting to the endless discussions upon statistics, Mr. Holmes said that none of the figures quoted by Dr. Nevins could be held as evidence that the Acts had interfered with any "annual average fall." But what chiefly weighed with the Commission was the statements made by medical officers as to the material benefit derived by the men under their charge from the working of the Acts. They were unanimous in the opinion that not only had disease been materially diminished, but its severity had been decreased. These statements, far more than any amount of figures, called for a fair trial of the Acts. It is hardly possible to say what the Acts might do if they were fully extended. Parliament should resist the opposition to the extension of these Acts as strenuously as it in former times resisted opposition to compulsory vaccination.—Mr. BRUDENELL CARTER desired to clear up a misconception as to the opinions held by Dr. Balfour, which had been so stated by Dr. Nevins as to imply that that gentleman was opposed to the Acts. When he was at Southampton on a visit to the men invalided from Ashantee in the *Victor Emanuel*, he saw Dr. Balfour, who expressed to him a strong opinion in favour of the Acts, and stated that, having been at first opposed to them, the evidence in their favour was so overwhelming that he had become an earnest supporter. Dr. Nevins's observations, if they proved anything, would show that there had been an actual increase of venereal disease since the Acts had come into operation. Surely this was inconsistent with common sense; the question being rather whether they had diminished disease sufficiently to make it worth while to keep them in force.—Surgeon-Major DE CHAUMONT exhibited diagrams, drawn up by Surgeon-Major FOX, showing the relative number of admissions for primary syphilis among the Royal Engineers, Chatham, during the years before and after the Acts, together with the total admissions and mean strength of the corps, showing that there had been a steady decrease in the numbers admitted. Another table showed the influence due to the introduction of recruits on the "epinozoic" (prone to disease) element. This epinozoic element was shown to have a striking influence in producing fluctuations in the number of cases admitted, which still, however, had rapidly declined, in proportion to the strength of the corps, since the Acts, as compared with the years preceding the Acts. Dr. Nevins had apparently disregarded the great influence thus shown to exist in the strength of each corps, and the resisting power of its members. As to the intensity of the disease being greater here than abroad, he quoted the opinion of an eminent Berlin army surgeon, that the number and virulence of the cases of syphilis at Netley were far greater than at Berlin.—Mr. T. BOND mentioned that at St. George's Union Loc. Hospital, Westminster, with forty beds and an annual admission-rate of 200, 75 per cent. of the number of patients annually admitted were the victims of syphilis in its severest and worst forms.—Surgeon-Major HUTTON stated, as the result of his experience, that whereas before the Acts the type of the disease was most virulent, since the Acts had come into operation the diminution in severity had been most marked.

The Society then adjourned at a late hour.

PATHOLOGICAL SOCIETY OF LONDON.

THE adjourned debate on the "Germ Theory of Disease" took place on Tuesday evening last, Mr. Campbell De Morgan vice-president, in the chair. It will be seen from the subjoined report that Dr. Bastian was warmly supported by Dr. Dougall of Glasgow, and to a certain extent by Dr. Crisp; the germ theory being upheld in a powerful speech by Dr. Maclagan; whilst Mr. Hutchinson started a third view to explain local contagion. The reply of Dr. Bastian will be given at the commencement of the proceedings at the next meeting.

Dr. MACLAGAN.—Dr. Bastian has gone over so much ground in the very able paper with which he opened this discussion that it is impossible for one speaker to deal with more than a part of it. I shall, therefore, confine my remarks as far as possible to the germ theory in its application to that class of diseases in which the property of contagiousness is most marked—the specific fevers. But before entering on that subject I should wish to make a few remarks regarding the general tenor of Dr. Bastian's paper. The first point to which I would refer is that there crops up through all his essay the idea that supporters of the germ theory must be panspermists, must be opponents of the doctrines of heterogenesis and archebiosis. As an advocate of the germ theory I entirely repudiate this position, and hold myself at liberty to recognise the competence of organisms to produce the phenomena of disease without being bound down to the belief that they never originate *de novo*. The evolution theory of life and the germ theory of disease are distinct and separate questions, and neither need have its consideration hampered by the views which we hold regarding the other. The second point to which I would allude is an idea which pervades the whole of Dr. Bastian's paper, the idea, namely, that advocates of the germ theory regard bacteria as bearing some causal relation to the phenomena of disease. The position is one which Dr. Bastian has created for the germ theorists rather than they for themselves. I am not aware that any advocate of this theory has distinctly stated that bacteria cause the phenomena of disease. In Dr. Sanderson's report on the intimate pathology of contagion, from which Dr. Bastian quotes, it is said that all microzymes are not contagia, but "all contagia may be microzymes." Observe the "may." The question is only stated hypothetically, and its further elucidation left for future research. That exactly expresses the position of the advocates of the germ theory. They could not fail to see that there was a possible connexion between the presence of bacteria and the occurrence of diseased processes, but that connexion was never declared to be causal. If any advocate of the germ theory ever thought that the connexion was causal he must now give up the idea, for if the question is to be decided by evidence we must acknowledge that Dr. Bastian has proved that no such relationship exists. I, for one, freely admit the justice of his claim to have established the position that bacteria are pathological products; but I do not on that account abandon the germ theory. On the contrary, I regard some of the arguments which Dr. Bastian looks upon as fatal to that theory as really affording to it valuable support. In that part of his paper which deals with virulent inflammations

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and their sequelæ, Dr. Bastian advances, "as sufficing to complete the discomfiture of the germ theory," the fact "that the virulence of certain contagious mixtures diminishes in direct proportion to the increase of bacteria therein"; and when dealing with specific contagious diseases the same argument is repeated—that "the virus of most of these contagious diseases with which definite experiment has been made is most potent in the fresh state, whilst its power very distinctly diminishes in intensity as organisms reveal their presence more abundantly therein." That is the argument which Dr. Bastian says "suffices to complete the discomfiture of the germ theory." Well, Sir, I would take the liberty to put a totally different construction on this fact, to claim it as a friend rather than regard it as a foe, and look on it as evidence, not against, but in favour of the germ theory. But what evidence have we of the existence of such protoplasm? I think not a little. According to the view which I take of this theory, the organisms which produce the phenomena of disease are not those which we see and describe as bacteria, but other and much more minute organisms. I think, indeed, it is still an open question whether a true disease germ has ever been seen. Of their existence we judge by the phenomena to which they give rise, as I shall presently endeavour to show. Now Dr. Bastian has shown us that the protoplasm of the tissues of epithelial cells and if an amœba undergoes bacterial degeneration; why may not the protoplasm of contagious particles of disease-producing organisms do the same thing? Their composition is similar (albuminous), and they are endowed with no special powers by which, at least in the moist state, they can resist the ordinary tendency of organised material to undergo change. I believe that they do undergo such a change, and that the bacteria which are observed in contagious fluids are formed, in part at least, from the disintegrating elements of the organisms which give to those fluids their specific properties. This is why the virulence of these fluids diminishes in intensity as organisms appear more abundantly therein, and thus it is that Dr. Bastian's main argument against the germ theory becomes an argument in its favour, the formation of bacteria from previously existing protoplasm being, on Dr. Bastian's own showing, more probable than archebiosis, or their formation from fluid. The germ theory, as I understand it, briefly is that many diseases result from the propagation in the system of organised particles having no part or share in its normal economy. The question is essentially a pathological one, for the discussion of which the floor of a Pathological Society is a peculiarly fitting place. What we, as pathologists, have to do is to take the phenomena of disease as they present themselves at the bedside of the patient and in the post-mortem room, and see whether the germ theory is competent to explain the phenomena then and there observed. In this way let us take up the specific fevers. The predominant characteristics common to these is the occurrence of the febrile state independently of local inflammatory mischief. Now, Sir, I do not see how on any physico-chemical theory the whole of the individual phenomena which go to constitute the febrile state can be explained. I do see how they can be explained by the germ theory. It is an acknowledged fact that in all the specific fevers the poison of each is reproduced to an enormous extent during the course of the disease to which it gives rise. Now, if this *materies morbi* be, as the advocates of the germ theory (with the exception of Dr. Beale) maintain, a foreign organism, it is evident that the large consumption of material which must take place during the rapid formation of millions of such organisms cannot fail to have a serious effect on the system in which they grow. Be they of animal or vegetable nature, two things will be largely appropriated during their growth — nitrogen and water. That the propagation in the system of millions of organisms is competent to produce all the phenomena of idiopathic fever, I have elsewhere endeavoured to show in some detail, and shall therefore now refer to it only very briefly. The primary and essential phenomena of the febrile state are, increased consumption of nitrogen, increased consumption of water, commonly referred to as increased retention; preternatural heat; and increased rapidity of the circulation. The rapid development in the system of an organism which acts like the tissues in consuming nitrogen and water, will give rise to the same phenomena as would result from a corresponding increase in tissue-formation. Thus it is that the contagium particles act. They largely consume nitrogen, and thus cause the wasting of the nitrogenous tissues; they largely consume water, and thus cause the thirst, dry skin, scanty urine, constipated bowels, which characterise the febrile state. It is in the minute structures of the tissues, rather than in the general circulation, that this growth takes place. They are formed in the same way, from the same materials, and at the same time as the tissues; the formation of their protoplasm is therefore attended by the same evolution of heat and the same increased rapidity of the circulation which would result from a correspondingly increased growth of the protoplasm of the tissues. There is not one of the phenomena of the febrile state which may not thus be explained. But I pass from these, on which time forbids me to enter, to a brief consideration of one or two other characteristics of the specific fevers—those, viz., which entitle them to the term "specific." First, the phenomena of the febrile state are the common result of the propagation in the system of many different organisms, each of which always, and under all circumstances, gives rise to its own specific disease, and never to any other. From this we infer a specific difference inherent in the contagium particles. Secondly, we find that at the end of a definite period—seven, fourteen, or twenty-one days, as the case may be,—the fever comes more or less abruptly to an end, while there is still in the system abundance of the material required for the organic growth of the germs. From this we infer that something more than merely nitrogen and water—something more than the bare material requisite for organic growth, is essential to their propagation. Thirdly, we find, as a rule, the contagia of the specific fevers cannot be propagated more than once in the system. From this we infer that during their propagation something is used up which is not again reproduced. Fourthly, we find that in most of the specific fevers there exists some peculiar symptom referable to disturbance or inflammatory action in this or that organ or tissue which imparts to the disease its specific characters, and distinguishes it from all others. Now, putting together these facts (and it is only by facts that theories should be formed), noting that each contagium is possessed of properties peculiar to itself, finding that something more than the elements essential to organic growth is requisite for the propagation of the contagium; and observing still further that what imparts to each of the specific fevers its distinctive features is not so much any peculiarity of the general symptoms as the existence of local complications, of inflammatory mischief in this or that organ or tissue,—observing all this, we cannot fail to see that there is probably some connexion between this local complication and the specific properties of the contagium. What is this connexion? It is, I believe, in the organs and tissues, whose affection imparts to each form of fever its special characters, and in them only, that the contagium particles find something which is requisite to their fecundation and propagation, as distinguished from their organic growth. For convenience sake, I shall call this something the second factor. For the production of the specific fevers those two factors are necessary. The first is the contagium; the second that special localised substance or material which is essential to its fecundation and propagation. It is for the recognition of this second factor that I would specially plead. And so with vegetable parasites. Each has its own favourite situation, beyond which it is not found. In asking you to recognise its existence, I place before you no vague hypothesis, but a properly welded theory, based on a careful study of the facts with which we have to deal. But that is not its sole foundation. To accord to contagia the property of propagating themselves only in certain localities is simply to endow them with characteristics which are common to all parasites. Nearly every parasite to which man and the lower animals are liable has its own special seat, out of which it cannot propagate itself. This one grows in the small intestine, that in the large; this one in muscle, that in liver; this one in brain, that in kidney. If the germs of any two diseases require the same second factor, the one would protect against the other; thus it is, probably, that vaccination protects against small-pox. Analogy therefore would lead us to accord a similar peculiarity to contagia. Any hesitation that we might have in doing so gives way when we find that by simply according to them this property, which is

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common to all parasites, we at once get a clue to the explanation of the specific differences of the diseases to which they give rise, and of the peculiarities which each presents. In small-pox this second factor has its seat in the skin; in scarlet fever in the skin and throat; in measles in the skin and mucous surfaces of the respiratory passages; in typhoid fever in the intestinal glands. So long as any of this second factor remains, the first factor (the contagium) continues to propagate itself; as soon as it is exhausted, the propagation of the contagium ceases, and the febrile symptoms come speedily to an end. If the system into which the germs gain entrance contains little of the second factor, the resulting attack of disease will be slight; if much, it will be severe. If the second factor be widely distributed and readily got at, the disease, as in small-pox, will be very infectious; if confined to narrow limits and reached with difficulty, as in typhoid fever, it will be slightly so. One word regarding the application of this theory to surgery and that treatment of wounds with which Mr. Lister's name is associated. In injuries and surgical operations the wound is the seat of the second factor. Without some solution of continuity, the germs which Mr. Lister seeks to exclude cannot be propagated. By means of antiseptics, says Mr. Lister, destroy any germs which may gain entrance to the wound at the time of its infliction, and by their continued and careful application prevent the entrance of others, and so you may prevent the occurrence of those grave accidents which frequently cause such havoc in surgical wards. That without antiseptic treatment wounds may heal up kindly and quickly is no very potent argument against Mr. Lister's theory. The explanation of such an objection is the same as that which is given of the fact that some persons may for a time be exposed to a notoriously infectious disease without contracting it. Mr. Lister does not say that a wound which is not treated antiseptically must go wrong; he only says that it is more likely to do so than one which is not so treated; just as the physician does not say that a man who spends some time in a typhus ward must take the disease—he only says that he may do so. But the objection has been raised, if Mr. Lister's theory be true and his treatment sound, why are the results not perfect? Even in Mr. Lister's own hands they are not so, and I venture to say that they never can be so, for direct contact is not the only way by which the germs may gain access to the wound; there is another mode of communicating with it—viz., by the circulation, a means of communication which cannot be excluded. It follows from this, that with the most perfect application of Mr. Lister's treatment a certain percentage of failures is inevitable—a percentage which might possibly be calculated with some approach to accuracy. The want of absolute success thus becomes an argument, not against, but in favour of Mr. Lister's germ theory of the origin of the ailments against which he seeks to guard. Did time permit, I would apply this theory to the explanation of the phenomena of many diseases to which no reference has been made. I hope, however, that I have said enough to show that much may be said in favour of the germ theory, and that the question may be studied from the pathological side with more advantage than is usually supposed. We judge of the existence of many things only by the effects which they produce. Just as the astronomer would err who refused to recognise the existence and influence of other celestial bodies than those which can be brought within range of his vision by the aid of the telescope, so I believe, though to a less extent, shall we as pathologists err if we fail to recognise the existence and influence of other organisms than those which can be seen by the aid of the microscope. Nature teems with organisms of whose existence, before the days of the microscope, man had no conception. Who shall dare to say that the limits beyond which organised life is impossible have yet been reached? "There are more things in heaven and in earth than are dreamed of in our philosophy."

Dr. J. DOUGALL.—Allow me, in the first place, to thank you for your courteous invitation to take part in this discussion. After reading the very lucid, trenchant, and apparently exhaustive paper read by Dr. Bastian at the last meeting of this Society, I concluded that those who had been wavering in their faith between the physico-chemical and the germ theories would at once adopt the physico-chemical theory, and that those who had previously adhered to or believed in the physico-chemical theory would be more confirmed in their faith. The subject is unquestionably one of great importance and one requiring great study. It requires, according to Lord Bacon when quoting Socrates, "A Delian diver, for it is deep plunged." My own opinions on this subject have been moulded from researches frequently the very opposite of those which formed the opinions of others,—that is to say, others have been more engaged studying evolution or development and life history of bacteria and their allies; I have been more employed in eliciting what might be inimical to their development and fatal to their vitality. There can be no question that there are two large views in regard to this subject, and the whole of the arguments seem to circle round these two views. One school considers that bacteria and their allies, vibriones and amœbæ, are the cause of the conditions of their nidus; another school considers that they are the result. I have found that to pervade all the writings that I have read, and generally, in my conversation with medical men on this subject, the whole point seems to be, are they the cause or are they the result of the conditions under which they are found? Now, I am of opinion that they are the result, and I have no doubt that the general acceptance of Dr. Bastian's theory is simply a question of time. I have made several thousands of experiments in determining the relative powers of different bodies in preventing the appearance of these organisms in the animal solutions, and although I did not make these experiments for the purpose of observing whether the bacteria arose *de novo* or how they arose, but simply to observe which was the most powerful preventive of the organisms, yet I learned a great deal from these experiments otherwise. There are two little experiments which I shall detail very briefly. In the first place, if you take an aqueous solution of blood-serum, separate it into two portions, and add a small portion of a mineral acid to one solution, letting the other remain as it is, in the course of about forty-eight hours you find the one that does not contain acid of course putrefies in the usual way; you find it teeming with bacteria in a short time, opaque and fetid. The other solution remains perfectly clear and odourless, and if you examine it carefully you may find a few torulæ, and possibly with the naked eye you may observe frequently only one, but seldom more than a dozen little tufts or wisps like thistledown. If you allow these two fluids to remain a considerable time, you will find at the end of about four months the fluid to which you added the acid ceases to respond to the test for albumen. During that time no bacteria appear in it; with the exception of the increase in the size of these little wisps, the fluid is perfectly transparent, and although the odour can scarcely be said to be fresh, it is rather a kind of mouldy odour, certainly not putrid. The other, with the bacteria, the putrefying solution, remains in that condition about twelve months, and continues to give a precipitate with albumen. I say here in the one case we have putrefaction, in the other fermentation; and here we have the same results as putrefaction brought about, but without bacteria. We have no bacteria in the fermented solution, and the same results followed. Some may say, "Oh, but you have organisms present." Very well. I will tell you another experiment. If you take a portion of that same solution of blood-serum and add to it from one-eighth to one-tenth part of its bulk of liquor potassæ of the British Pharmacopœia, you find immediately you mix the two together a putrid odour is evolved. Why I do not know, but such is the case; and this odour disappears in about a fortnight. No bacteria are developed, and at the end of two or three months the fluid ceases to give a precipitate with nitric acid, or the usual tests for albumen. Here is putrefaction without organisms of any kind. It would be impossible for organisms to live in such a caustic solution, that is an obvious fact. Here is putrefaction without organisms. Therefore these organisms cannot be at least the sole cause of putrefaction. The advocates of the germ theory may say, "Did you ever see a case of putrefaction without organisms?" No, I say, I never saw a case of an animal fluid putrefying without organisms, but I can see organisms without putrefaction. You may as well ask to be shown a candle burning in pure carbonic acid, or an insect flying in a vacuum, as to see that; but it is well known if you take a solution of ammonio-tartrate, and some of those other salts, that they breed organisms, and, of course, they are incapable of putrefaction. These experiments show that you can have

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organisms without putrefaction, and putrefaction without organisms, and, therefore, the two processes are quite independent of one another. I think the physico-chemical theory explains the occurrence of putrefaction. In this solution of the potash, as I have said, obviously organisms could not exist. The fluid was unboiled, open to the atmosphere. If putrefied, therefore, the putrefaction must either have occurred spontaneously, or it must have occurred according to the physico-chemical theory. With regard to the presence of bacteria in the virulent inflammations, which Dr. Bastian referred to, I think the arguments he has adduced are the most telling that possibly could be brought into any scientific argument. I think the very fact that virulent fluids—fluids having infective powers—lose their infective powers when bacteria appear in them is, as Dr. Bastian has said, quite conclusive. With regard to the views of my respected teacher, Mr. Lister, I think I can speak about them because I got his theory well drummed into me. Mr. Lister holds that organisms are the cause of putrefaction, or he used to hold that. He says you never see putrefaction without organisms, and if you kill these organisms you prevent putrefaction; and then he says also that if a portion of a putrefiable fluid be put into a flask, as M. Pasteur has done, and the flask boiled when it is mixed up with cotton, the contents of the flask do not putrefy, because the cotton has filtered off the bacteria or the germs that would have got into the flask. I think Dr. Bastian has answered that in a most remarkable way, a way there can be no question about at all, showing (as Dr. Sanderson and Dr. Beale and Dr. Bastian agree) that the bacteria are present in the body, and that any obvious application to a surgical lesion would have no effect upon the bacteria in the body; and of course it can have no effect upon bacteria that do not exist, because it has been shown that there are no bacteria in the atmosphere. But Mr. Lister has also said that carbolic acid is one of the most powerful of antiseptics, because it is a most powerful germicide in regard to its destructive action on bacteria. The action of an antiseptic is a very different thing from the action of an anti-zymotic. That is a serious mistake that is made. I have made a good many experiments with vaccine lymph and with carbolic acid, and I find that the carbolic acid actually preserves the vaccine lymph. I kept a portion of vaccine lymph enclosed in a cubic foot of concentrated carbolic-acid vapour for thirty-six hours, and was astounded to find the lymph as active as ever. Judging from that fact I concluded that if it preserves vaccine lymph, which is the only zymotic poison we can actually see and handle and experiment with freely, we are justified in inferring it will preserve other zymotic poisons. A surgeon in a large hospital informed me about a fortnight ago that pyæmia was very rife in the wards of his colleagues, who used carbolic acid; while there was not a single case in his ward, and he does not use carbolic acid. As regards the applicability of the germ theory to specific fevers—such as typhus and so forth,—I think that Dr. Richardson gave this theory its quietus about four years ago at the London Medical Society, inasmuch as he said if germs be ready to reproduce with the rapidity of reproduction assigned to them, and possess the persistency of life which they are said to possess, it is a wonder that either man or beast are alive, or that the world is not depopulated. The able epitome of existing knowledge of the presence of organisms in contagious and infectious diseases recently published by Dr. Sanderson is unquestionably most valuable, and will undoubtedly prove a permanent contribution to zymotological literature; but I think the presence of these organisms in these diseases may be explained by the physico-chemical theory. They may be a *de novo* pathological result of a *de novo* disease. It is remarkable that, of the four diseases mentioned by Dr. Sanderson, only one—relapsing fever—is epidemic in the human subject. Dr. Murchison, in his splendid monograph on Continued Fevers, has a very able article headed "Spontaneous Generation of Fever," which I advise you to read. He seems to think that this relapsing fever arises *de novo*, and that these organisms are simply the pathological products of the fever. It does not appear to me that a case, say, of small-pox may always be traced to a previous case, that small-pox does not arise *de novo*, because the conditions under which it originated may have ceased to exist, while those under which it disseminates still prevail. I would apply that reasoning to all other diseases. In conclusion, I believe we shall never cope successfully with communicable diseases till we recognise and practise in their entirety the views that all contagious and infectious viruses have arisen, may arise, and that several of them daily are arising, spontaneously, both in and out of the body: in the body, from some unknown perversion of the secretions, induced in many ways, but chiefly prolonged violation of the laws of health; out of the body, from some chemical synthesis—about which we know nothing—of the atoms of effete nitrogenous matter, and which, taken into the system, affect the secretions as if the poison had arisen there, or so as to make it arise;—also that contagia are comparatively easily annihilated by thorough exposure to and dilution with atmospheric oxygen, independent of other artificial means, especially acid disinfection, &c. These views account for the apparent persistency of communicable diseases, and for the explosions and quiescence of epidemics, more naturally than by considering zymotic poisons as vitalised, self-reproductive entities, endued with supernatural powers of resistance to atmospheric and other agencies—powers not possessed, so far as I am aware, by the ova of any motile organism. They also harmonise with Dr. Sanderson's objections to Dr. Beale's view, that disease germs consist of portions of degraded bioplasm, which, as Dr. Sanderson, I think, correctly observes, "of all perishable things, is the most perishable." But it differs from the views both of Sanderson and Beale in not regarding contagious units as vitalised entities, but simply as fragments of dead organic matter, whose elementary particles are in some occult state of chemical union, and capable of imparting their condition to other bodies susceptible of the same change. I think we have a good example of this process in the propagation of typhoid contagion by milk. Under certain insanitary and morbid states intimately correlated, certain specific viruses are evolved, and for a time the forces of destruction may equal those of evolution; but should they be less, the accumulated effects culminate in an epidemic till the balance is restored, because people are then up in arms, and sanitation and the forces of destruction for a time preponderate. Far be it from me to undervalue, in the least, patient and silent research into the remotest regions of the minute pathology of contagion. Still I cannot but think that those who refer the complicated phenomena of specific diseases exclusively to bacteria and their allies, discarding antecedent conditions, of which these organisms are far more likely a harmless effect, will not so soon be gratified at seeing the fruits of their labours in a diminished zymotic mortality as those who hold the opposite opinion.

DR. CRISP.—Rather than the time should be lost I take the opportunity of rising to say a few words, and I shall confine myself chiefly to the diseases of lower animals. I have often said at this Society that students will be obliged to commence with the lower forms of organisation, and work upwards from them. One of the first speakers in this discussion reminded us that we should not imitate the example of the French Academy, but confine ourselves to facts. Now what are facts? I am an old man now, and I have lived long enough to come to the conclusion that Cullen did a great many years ago, that there are more false facts than false theories, and probably those who hereafter read this discussion will say that it is a confirmation of the statement I have made. I will now confine myself to the statement of a few simple facts—for such they really are—as regards the appearance of bacteria in the lower animals. I was the first in this country, some thirty years ago, to direct the attention of the profession to splenic apoplexy. It was never described by any English author, and the cases were all denominated "splenetis" by the veterinary profession. I had a great many opportunities of examining this disease, and I saw many cases of this kind, where animals, say thirty or forty oxen, had been turned into a pasture where they quickly got into a plethoric condition, and twenty of them were found dead in one or two days. The same remark applies also to sheep. That is a fact that there can be no question about. I believe that splenic apoplexy might be produced in this way. And what do we find? Generally speaking the spleen is enlarged and full of blood. I have shown at this Society a portion of an ox spleen weighing 25 lb. or 30 lb., and in all these cases we found the blood filled with bacteria. So with the whole class of diseases denominated charbon. Davaine, who has not received suffi-

cient attention in connexion with this matter, thirty-five years ago began his experiments, and as I reminded Dr. Sanderson when he brought forward his paper on pyæmia, he appeared to be ignorant of those experiments. He inoculated rabbits with the blood of sheep that had died of this disease, and he went on killing the rabbits within a given time, almost to the hour. He inoculated fourteen or fifteen in succession, and they all died within a certain time. In all those cases bacteria were found, and without bacteria being present he could not produce these fatal results. In the last volume of our Transactions I have described that disease which was so fatal to poultry in Ireland. I there found these bacteria. The fowls were in excellent condition, and (as I have known in my own poultry yard) they died in four hours. Only last week I had a hen that died in that way. I gave a part of her flesh and intestines to a duck, which died in thirty hours. The blood was filled with bacteria. Then comes the important question—and upon this everything hinges—are these bacteria the cause or the consequence? I confess I am rather disposed to agree with the opinion of the last speaker, that there is some chemical change produced in the blood which occasions these low organisms. We have, I think, no proof at present that what is called the germ theory of disease is founded upon fact. That is the conclusion I have come to; and I think that hereafter it will be found that we must modify our views very much respecting this matter. I might mention other diseases in the lower animals, new diseases that have been introduced during the last few years, such as pleuro-pneumonia and the foot-and-mouth disease; but in my researches I have not been able to find the same organisms in these diseases that I have found in splenic apoplexy and other allied diseases. I think we might at present argue night after night, and come to no definite or practical conclusion. Such is my impression. But I think the subject is well worthy of investigation, especially by young men who are ardent and enthusiastic; and I have no doubt that before many years this matter, which is now so mysterious and doubtful, will be definite and pretty certain.

Dr. BURDON-SANDERSON.—Permit me to say a word in explanation, with reference to the statement just made by Dr. Crisp as to M. Davaine's discovery. If I had not properly studied the history of the investigation of splenic apoplexy at the time Dr. Crisp refers to, he certainly has not studied it up to the present moment; for the disease and its relations to new organisms of the particular kind which we have under our consideration, particularly the fact of the existence of organisms in the blood of living animals affected with splenic fever, were referred to by Polander, also by Prof. Brown of Dorpat, several years before the first papers of M. Davaine and other French observers made their appearance. I mention this fact by the way.

Dr. CRISP.—I did not say that Davaine was the discoverer, but that his experiments were of a more practical character. I mentioned this especially, because it is the fashion now to ignore everything that is French and swallow everything that comes from Germany.

Mr. JONATHAN HUTCHINSON.—I did not come here to take part in this discussion, because I believe it was the wish of the Society that it should rather be confined to those who have investigated the subject by experiment, and especially by the aid of the microscope, and I have no facts of that character to adduce; but if there be no gentleman present who desires to speak to that part of the subject, I should like to make a few observations on the general question. And what I should like chiefly to say is this—that I think we are not doing wisely in speaking concerning the contagia of the specialised forms of inflammation at the same time and in the same manner as we speak of the contagia of the specific fevers; and I would submit to the Society whether it would not be better that we should keep these two subjects wholly distinct. I might mention the very able speech of Dr. Maclagan this evening in illustration of my meaning. Dr. Maclagan commenced by saying that he should justify the germ theory chiefly or solely in reference to the contagia which produce specific fevers. I was extremely interested in the first three-fourths of his speech which concerned that subject, and I may say that my mind went entirely with his arguments that the specific fevers are specific; that their phenomena and their clinical history prove that they are specific; that they run a definite course, protecting the organism afterwards; that they breed true, which is the test of specificity; that they seem to require that the germs which have produced them in one individual shall be applied; and that they are producible by no other means. And I think that Dr. Maclagan is quite correct in his inference, which he wished us to accept, that it is very probable that these diseases arise from something which is very properly termed a germ—a germ in the sense of a seed,—just as we might sow a definite crop in the ground, and should know that we could not get the crop unless we sowed the definite seeds. So far as specific fever goes, I quite join in the belief, although founded on *a priori* conjecture, with Dr. Sanderson, with Dr. Maclagan, and with those who believe in the germ theories; but I was disappointed when Dr. Maclagan concluded his speech by seeming to imply that the arguments which support the germ theory for the specific fevers support also the germ theory for the origin of the contagious forms of inflammation; and I suppose that the contagious forms of inflammation are what are meant by "virulent forms of inflammation" in the terms in which the discussion is introduced. I do not know any other way in which "virulent" can receive a scientific definition. I should be glad if some more carefully defined word had been used; because in surgery and in clinical practice we really do not know how the term "virulent" ought to be applied. I really do not know what Dr. Bastian meant when he used that expression. Now, it does seem to me that there are *a priori* reasons for separating the contagious forms of inflammation most definitely and very widely from specific fevers; and I must repeat what I have said, that I think it is unwise to discuss them in the same manner as if they were at all comparable. My impression would be that the facts which apply to the specific fevers do not apply in the least to the contagious forms of inflammation, and I think we shall have to find some other theory to account for the contagiousness; for everyone will admit the contagiousness of certain forms of inflammation—quite apart, I repeat, from specific fevers. We have had very ably placed before us the two rival theories—the germ theory, on the one hand, and the physico-chemical theory, on the other: the one supported by Dr. Richardson many years ago, and very ably advocated by him since—applied by him, I believe, not only to the contagious forms of inflammation, but also to the specific fevers. Now, I must say (as, indeed, I have already said), that to my mind the evidence adduced by him, and adduced by the gentleman who has spoken ably this evening in favour of the theory, does not seem to me very satisfactory. I think the germ theory applies better to the class of facts which we recognise respecting specific fevers than does any theory on a chemical basis. We should have to suppose something so very special in the chemical product which produces them, and it is less easy, I think, for a man to accept that theory than it is to accept the theory that it is due to something to which the term "germ" is applicable. But if I come to such contagions as that in which gonorrhœa, or gonorrhœal ophthalmia, or erysipelas originates, by which an inflammation not only spreads from one individual to another, but from part to part of the patient's tissues in which it begins—a good instance would be the spreading of erysipelas in a patient's tissues, or the spreading of gonorrhœa along the mucous surface affected by it,—I say I do not think I am then confined to these two theories. I do not think it is necessary to consider only whether this individual has received some zymotic poison, some vegetable germ that is spreading in the way that yeast grows in fluids, and which is inducing this inflammation from without, or that he has some physico-chemical poison which is causing these results. My impression is that there is yet another theory which deserves consideration side by side with these two, and I am not sure that I have heard it alluded to in this discussion. It is this, that the products of inflammation themselves may be the means of contagion, contagion by continuity in the patient's own tissues, contagion through the patient's vascular channels, it may be to somewhat distant parts, or a contagion, if the conditions favour such a transplantation of them, to another individual. So that I should be inclined to think that a surgeon in the pre-microscopic age who was cognisant of the facts of the spreading of erysipelas and gonorrhœa, and what we term porrigo of the

skin, an important form of skin disease, in which it appears that the disease is purely local, and spreads by the contagion of the elements produced by the inflammation,—I say I think a surgeon without the aid of the microscope, and knowing nothing of bacteria, nothing of vegetable germs, would think that he found no satisfactory explanation of the phenomena which were submitted to him in believing that the products of inflammation themselves were the source of contagion, that it was the cells themselves which did it, that the living pus-cells which grew in a patient's tissues caused the inflammatory process to spread in those tissues, and that it was quite competent for those cells, when transferred to another individual, to produce this result provided they were living; for I do not advocate the doctrine of pus being contagious in the sense in which you would believe that you might take pus out of an abscess and get contagion. The pus in the abscess would be utterly dead pus, undergoing decomposition, already become fatty, and of which there was no hope that it could again grow. If you wish to illustrate the doctrine of pus contagion, you must take the pus at the earliest period of its production. It is obvious that I am using the term pus in a rather wide sense, as including most of the fatty products of inflammation, and my conjecture would be that these products are themselves the source of contagion. Now against the idea that there is any contagion derived from without—any germ contagion which would account for the production of such a disease as gonorrhœa or gonorrhœal ophthalmia—I submit the fact that we have various degrees of them, varying degrees of severity, and I would illustrate this by referring to the fact that those who are conversant with the practice of inoculating the eye in order to produce artificially gonorrhœal inflammation of the conjunctiva (which is sometimes done to cure gonorrhœal lids), well know that they can produce severe inflammation or slight inflammation, of almost any degree of severity they wish, by selecting the kind of pus which shall act as the contagium. Now, if the inflammation were due to germs, it seems to me that it would be very improbable that these germs should be modified in their character at each stage of the inflammation. That germs are derived *ab extra*—a germ in the sense of a pus-cell—I of course admit; but I think we ought to draw a strong distinction between a germ which can be got only without the body and a germ in the sense of a cell part of the patient's organism and produced of his tissues. I do not say it is easy to account for the different degrees of severity of gonorrhœa, gonorrhœal ophthalmia, erysipelas, and phagedæna, which all admittedly vary in degree, and generally in the ratio of the severity of the disease in the patient from whom the contagion is derived. I say it is very difficult to suppose that these are due to specific germs existing without the body, while it is tolerably easy to account for them on the theory I suggest, that they are due to the contagium of living cell-material supplied entirely by inflammatory processes, deranged processes of nutrition which go by the name of inflammation in the patient's own tissues. I think that anyone who should incline to investigate the theory of pus contagion would believe that it is a general law that almost all cell elements arising in connexion with inflammation in the patient's own body are, under favouring conditions, contagious, and that they produce in the recipient a disease of the same type—that is, differing in type as gonorrhœal inflammation, as erysipelatous inflammation, as porrigenous inflammation, as diphtheritic inflammation do in the recipient. I think he would incline also to accept another doctrine, that it is necessary for cells to be produced by skin tissue similar to that in which they are to be transplanted: that gonorrhœal pus, for instance, manifests its potency as regards contagion very differently according to the mucous membrane to which it is applied; not all mucous membrane can grow it. The pus produced by the skin appears to grow only on the skin; or, at any rate, it is with great difficulty that it produces any inflammation on a different kind of tissue. I have no doubt that there would be a great number of other circumstances that would regulate and modify the various results which we see in connexion with these processes of pus contagion, such as the age of the patient, the precise character and state of his health, and so forth. But these had in view, I think we should be able fairly to explain most of the phenomena which we meet with in practice in reference to the contagious forms of inflammation. So much, then, as to the arguments for this doctrine. Then, as regards its application in practice, it will be seen if this theory be correct, we shall fall back from the modern doctrine of the antiseptic treatment of wounds to the old doctrine of the antiphlogistic treatment; and it is my strong conviction that this is what in the end we shall come to. I do not think that when a wound secretes pus and inflames, and what you hope are adhesions break down, that is due to any putrefaction of fluids which have been effused; I believe it is due to something which would be much more correctly denominated inflammatory action, and that the decomposition, which is undoubtedly a character afterwards, and which is perhaps an important element in keeping up and aggravating the inflammation—a matter which it is very suitable the surgeon should attend to afterwards—is not the primary thing; that it is the inflammation which induces certain products that undergo putrefaction, and not the putrefaction which first sets up the inflammatory action. I believe one might mention a great many facts which would very much favour that view, that it is not the introduction of any germs from without which prevents the primary union of wounds, but that it is rather inflammatory action, and that that inflammatory action may originate in various causes—in mechanical causes, the bruised edges of the wound favouring the occurrence of this inflammation; and in other cases very important indeed in surgical practice, especially in large hospitals, in the contagion of wounds. But then, again, I refer to my theory that it is pus contagion, and not the contagion of germs. In proportion to the number of suppurating wounds in any hospital where operations are performed, in proportion to the number of wounds which are suppurating unhealthily, in proportion to the number of wounds which in the least incline towards erysipelatous suppuration, or erysipelatous inflammation, or phagedænic inflammation, will be the disappointment of the surgeon in having good results as regards his operations, because then it is obvious that the opportunities for the transference of cells which have originated the inflammation, and which are capable of originating it again in any second recipient, are common about the hospital, getting as they do on the hands of the operator, of his assistants, dressers, spongers, and the like. Hence the presence of what are called hospital diseases. Hence also the explanation of the remarkable success attending the practice of surgeons who are paying special attention to the subject. As soon as a man gets any degree of success, as soon as he diminishes the number of separate wounds that he has in his wards, the old saying applies: "To him that hath shall be given." It is manifest that the chance of contagion is diminished, and then he gets remarkable success, such as that which attended Mr. Callender at St. Bartholomew's Hospital, Mr. Lister of Edinburgh, and several who have practised ovariotomy, carefully abstaining from the treatment of other cases which would expose their hands to the contagion of purulent secretions. I believe I have had as good results from the systematic adoption of remedies calculated to repress inflammatory action as any that I have read or seen in the hands of those who attempt to prevent putrefaction. I have seen, for instance, and I have no doubt that many surgeons could relate similar cases, a wounded knee-joint heal as satisfactorily, without a trace of inflammation, under the systematic application of ice-blisters over the whole knee-joint—the use of cold, with the view of repressing inflammation. I would also, in conclusion, explain part of the results which those who use antiseptic remedies have obtained on the theory that the action of these so-called antiseptics is not at all limited to the prevention of putrefaction. We all know that the preparations of tar, carbolic acid, and creasote are useful in repressing ordinary cell-growth. Anyone who has used carbolic acid applications to wounds on the antiseptic theory will be familiar with disappointment on the opposite side. They may prevent the wound from inflaming, it is true; they also prevent it from healing, owing to the potency of the carbolic acid preventing cell-growth. They do not so much prevent decomposition, which I hold to be unimportant and secondary: it is very important to be attended to if decomposition has occurred; but not very important as regards endeavouring to prevent it. If you prevent inflammation, if you prevent the accumulation of inflammatory products in the wound, there will be nothing then to decompose. I believe that washing with a solution

of carbolic acid, saturating all the cells in the neighbourhood of the wound, is a very efficient means of preventing inflammatory action, and preventing the origin of cells which would tend to spread inflammation to other parts of the wound, and possibly subsequently be the means of contagion to other patients of the same kind. My main object in speaking is rather to say that it would be wise to discuss, without any wish to prejudge the question, these two classes of disease as quite distinct, and that we shall certainly get into error if we confuse the contagious inflammations which are non-specific—more or less special, but certainly not specific in the sense of being always alike—with specific fevers.

Mr. KNOWSLEY THORNTON.—I had put down a few observations which I hoped to make in connexion with the germ theory of disease; but I felt considerable difficulty in doing so because Dr. Bastian's paper seemed to me to have shut out to a great extent the question which I had more particularly studied—namely, the germ theory of fermentation and putrefaction in connexion with surgery. It seems to me, as other speakers have said, that the subjects should be kept distinctly apart; and we can hardly deal with the question in connexion with surgery, so preponderating has been the subject of the germ theory of disease in the discussion; but Mr. Hutchinson has made some remarks on the antiseptic system to which I should like briefly to refer, in connexion with the antiphlogistic system. Similar views have lately been brought forward by Professor Billroth, who states his belief that there is a substance of a phlogistic zymoid form in tissues, which he seems to think is the product of inflammation, and that there is probably a substance formed, a septic zymoid, which is the cause of septic diseases, such as septicæmia, pyæmia, &c. Then he goes on to say that he thinks there is very likely some close connexion between these two substances, or that they may even be identical. There are one or two points which anyone who has seen many antiseptic cases must regard as a conclusive argument against such a view. Take any ordinary wound treated antiseptically from the first with the care that one who has the germ theory at heart will give it, and taking the precautions that Mr. Lister himself would take to prevent what he believes to be potent causes of putrefaction in the wounds (and here, I think, one must speak of germs as distinguished from living organisms, bacteria floating in the atmosphere); when you have this wound so treated, Lister has taught that you may have in the wound, from errors of detail and management, putrid suppuration; you may have also another form of suppuration, inflammation going on even to suppuration through neglecting certain common surgical precautions, getting tension from serous fluid accumulating in the wound, this tension passing on to inflammation and the inflammation passing on to suppuration, and still this suppuration is not putrid. You may have again another form of inflammation passing on to suppuration from the direct action of the antiseptic substance you use. As, for instance, if carbolic acid dressings are too strong next the wound, they will first inflame the wound, and then that inflammation will pass on to suppuration; but in neither of these cases does one find any bacteria or any putridity. Putting the two things together, it seems to me, if we look at the question from this view, that it is destructive to Billroth's idea of these two substances being identical, because if we have such a condition as this—a condition of tensive suppuration in a wound treated antiseptically, and the matter so accumulated is let out by incision, and care taken that it is all let out, that it shall have free escape, that any oozing that takes place afterwards, or any fresh matter that is formed, shall have free escape,—we shall have no further accumulation; it just acts as an abscess acts under antiseptic treatment. If you let out the pus, if the antiseptic treatment is perfect, you will have no more pus; you will have serum, but not pus. In the same way, when the wound is treated antiseptically the inflammation stops at once when the cause is removed. Now, if there is a substance like this, which Professor Billroth imagines is formed in the wound, I think we might expect, at any rate to some extent, continuous action, and the suppuration would not stop abruptly when the outward cause was removed. So, in the same way, it would apply to antiseptic suppuration. Then with regard to the septic zymoid, if the septic zymoid and the phlogistic zymoid were identical, after you have once had the tissue put into a position to form this phlogistic zymoid by the tension or by the irritation of the antiseptic, then the suppuration would pass on to septic suppuration; but we know that that does not take place. I understand from Mr. Hutchinson that his is a very similar view as to the formation of some such substance in wounds. Another thing that he has mentioned is the subject of the treatment of ovarian cases. That is a subject in which I have also taken great interest, and it has been constantly thrown in my teeth as a believer in antiseptics: How do you explain the circumstance of ovarian cases doing so well? Surely there you give the germs every chance; you have a large surface exposed, you have extensive adhesions to deal with, and if the germs are floating in the atmosphere, surely they have every chance of causing putrefaction. Certainly I for one have seen most rapid and fatal cases of septicæmia in connexion with ovariotomy, but happily they are rare. When we do get a case of septicæmia, I think most surgeons who have practised ovariotomy will bear me out, it is often rapidly fatal. It seems to me that the reason why we have not more of it, and why ovarian cases do so well, is this, that immediately after you have done your operation you free the tissues from all sources of outward irritation, you thoroughly protect them, and leave them, as nearly as possible, as in the case of a wound in a state of health; the parts are left in a state of absolute perfect rest. There is nothing to interfere with them; there is no tension; the parts are all lax; there is nothing to interfere with the healthy processes going on; therefore, the idea which Professor Billroth seems to hold strongly, that there is vitality in the tissues in health which resists the action of these germs, and prevents the development of bacteria, will explain this—that we have the tissues as nearly as possible in a state of health, and therefore, in an ordinary way, the germs do not develop. If, on the other hand, we get a case where the patient is in bad health, the tissues have not the vitality required, and then we get these rapidly fatal cases.

The discussion was then adjourned.

DESCRIPTION OF THE ROTHERHAM HOSPITAL.

BY E. J. SHEARMAN, F.R.S.E., &c.,
PHYSICIAN TO THE HOSPITAL.

HAVING devoted a great deal of time and labour in endeavouring to have erected, in this large and rapidly increasing borough, a hospital on the best ascertained scientific principles as to its sanitary condition, comfort, and convenience, and visited a great many such institutions with the view of ascertaining what to avoid and what to copy, I think a description of it, with a ground plan, may prove acceptable, not only to the medical profession but to the public at large. It has now been in active operation three years, and I have had ample time and opportunity of observing the extreme comfort and satisfaction the patients have expressed, when suffering from most fearful accidents and disease, and been able to discover some of its defects, and admire its general plan, which has been arranged to consume as little time as possible of the honorary medical staff, and give every possible and immediate attention to all its inmates.

The hospital is erected in the centre of an elevated field of four acres, just on the outskirts of the town, has an entrance north and south, and so situated that it cannot at any time be enclosed with buildings. It is arranged to consist of three pavilions of one storey each, 60 ft. apart, the axis north and south, with windows on each side, sufficiently raised from the soil to be dry and warm; the ground underneath the floors covered with concrete; the breadth of each ward 25 ft.; the height up to the square 15 ft., and carried as high as possible into the roof, so as not to expose the timber work or leave angles, and to afford not less than 2000 cubic and 140 superficial feet of floor space for each bed. These pavilions are connected with a very fine, long, well lighted, ventilated, and heated corridor 10 ft. wide and 240 ft. long, at each end of which are two special wards for

two beds. In connexion with each ward is a nurses' room, a ward kitchen supplied with hot and cold water, and every necessary article required for cooking; a watercloset and urinal; sink, with proper sewerage for emptying slops, &c.; a bath and lavatory; a bath-room for examining and cleansing patients, sufficiently large to contain a bed-carriage capable of being wheeled into the wards; an accident ward with two beds; a beautiful, large, well lighted, and well ventilated operating theatre, with every possible accommodation; two convalescent rooms, one for each sex, which make excellent wards of four beds each when required.

The building is constructed of stone, and no expense incurred in ornamentation. The walls of wards are plastered with Parian cement. Floors of wards made of dry red deal, and all the joints well closed. Originally one window to each bed; the windows carried up to the ceiling; and the window space one-third of the wall space.

All the building is supplied with electric bells, speaking-tubes, gas, and constant hot and cold water.

Every watercloset is erected outside the walls of the hospital, cut off from the wards by a ventilated lobby and double swing doors, so as to prevent the possibility of any impure air entering the wards.

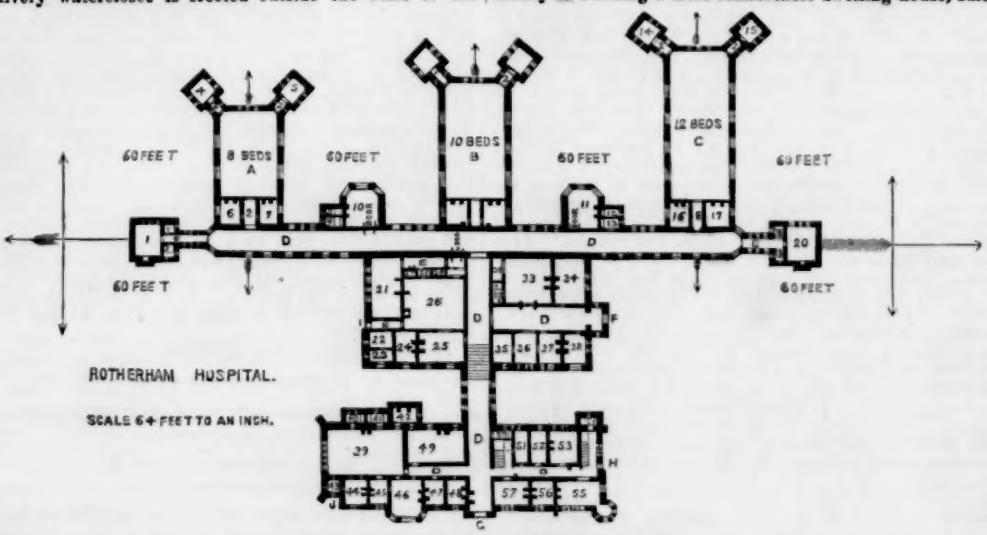
In every ward and corridor the foul air is collected by an air-shaft in the ceiling. Over every gas chandelier is a copper cylinder which goes through the air-shaft and roof; and at the top of each cylinder a gas jet is kept burning, so as to cause an upward draught. This is found a most complete mode of ventilation.

All the corridors are heated with hot water in winter.

The large hospital kitchen is in the centre of the building, with speaking-tubes to each ward. On the outer side of this are the scullery, pantry, and laundry.

The stoves were originally in the middle of the wards, but we found it impossible to use them there, and had them removed to the sides.

In the administrative building, the west part of which belongs to the house-surgeon, I was outvoted in trying to have it erected for a single man; and we laid out too much money in building a most comfortable dwelling-house, suitable for a family. We were compelled to attach the old dispensary to the hospital, the entrance to which is east. In this part of the building, besides the dispensary, there are as many bedrooms as will accommodate all the nurses and servants required, when the hospital, in future, is enlarged so as to contain two hundred beds or more; together with a large room for a library and museum. In the reference to the ground-plan annexed, every room, except in the second storey of the administrative building, is pointed out. The direction of the arrows points out how and where additional wards can be erected, without taking any part of the building down.



REFERENCE TO GROUND PLAN OF ROTHERHAM HOSPITAL.

1. Special ward.
2. Sink.
3. Watercloset.
4. Bath-room.
5. Watercloset and sink.
6. Nurses' room.
7. " kitchen.
8. W.C.
9. Lavatory.
10. Convalescent ward.
11. " "
12. W.C.
13. Lavatory.
14. Bath.
15. W.C. and sink.
16. Nurses' room.
17. " kitchen.
18. Lavatory.
19. W.C.
20. Special ward.
21. Laundry.
22. Pantry.
23. "
24. Scullery.
25. Dining hall.
26. Hospital kitchen.
27. W.C.
28. Closet.
29. Stairs to cellar.
30. Instrument cupboard.
31. W.C.
32. Lavatory.
33. Operating theatre.
34. Accident ward.
35. Bath-room.
36. Hospital waiting-room.
37. " " "
38. Porter's room.
39. Dispensary, waiting-hall, and chapel.
40. W.C. for men.
41. W.C. for women.
42. Undressing-room for physicians' patients.
43. Porch entrance to dispensary.
44. Dispensary.
45. Undressing-room for surgeons.
46. Surgeons' room.
47. Assistant-surgeons' room.
48. " " bed-room.
49. Physicians' and board room.
50. W.C.
51. House-surgeon's pantry.
52. " " scullery.
53. " " kitchen.
54. " " W.C.
55. " " dining-room.
56. Linen-closet.
57. Matron's room.
A, B, C. Wards.
D. Corridors.
E. Lobbies.
F. Hospital entrance.
G. Staff entrance.
H. House-surgeon's entrance.
I. Kitchen entrance.
J. Dispensary entrance.
K. Lobbies.

The dispensary is cut off from the hospital by the corridor, which contains three large windows on each side; and these, when opened, admit such a current of pure air from east to west as to prevent the possibility of any impure atmosphere being conveyed from one to the other.

The faults we committed are the following:—1. There are too many windows in the wards; they reach too high, and make the wards cold in winter, and too hot in summer. 2. The watercloset were badly chosen, and so imperfect that we have been compelled to take them away, and replace them with more perfect ones. 3. The porter's room would have been more useful nearer the front entrance than where it is. 4. Too much money has been expended on the house-surgeon's private dwelling.

In consequence of want of funds, the middle ward is not yet built, and we are now erecting a mortuary in the south-west angle of the grounds. The hospital will now accommodate 30 patients.

The cost of the land and building was £9500; furnishing the hospital, laying out the grounds, and building the mortuary, £1700.

We are indebted for the architecture to William Bakewell, Esq., of Leeds and London, whom I can confidently recommend as an architect for hospitals, and to whose courtesy I am indebted for this ground plan.

Rotherham.

THE LANCET.

LONDON: SATURDAY, APRIL 24, 1875.

THE discussion on the second reading of the Public Health Bill was curiously illustrative of the very crude notions which appear to obtain in the House of Commons on the ultimate objects which sanitary legislation is designed to meet. Dr. PLAYFAIR alone manifested any true comprehension of the question which should lie at the root of legislative and administrative action in public health matters; but he most unfortunately looked upon the Bill from a wrong stand-point, and such of his observations as should most have commanded the attention of the House were unheeded in the discussion of the erroneous issue he raised. Dr. PLAYFAIR thought fit to consider the Bill as if it had been proposed as a work of final and permanent legislation. Mr. SCLATER-BOOTH had no difficulty in dealing with this misapprehension, and in showing that there was no intention of stereotyping existing law by it, but simply of "focussing," so to speak, this law, and, by so doing, clearing the way for the adoption of various reforms which Dr. PLAYFAIR had referred to. We have already expressed our opinion (THE LANCET, March 13th, p. 376) that the Bill thus regarded would be of the greatest value. It is true that this consolidation of the sanitary law cannot be effected without some amendments; but it was overlooked in the House that the amendments introduced into the Bill, although few in number, were of two sorts: one sort necessary for the legal work of consolidation; the other sort extending sanitary law. The former sort can hardly admit of serious discussion having regard to the main object of the Bill; the latter ought not to pass the House without careful consideration. Now this distinction did not seem to have been seized by any of the speakers in the House, and the Bill passed the second reading without the one question being touched upon which should have especially arrested the attention of the House, and which should have given force to those observations of Dr. PLAYFAIR which were unheeded. We refer to the provision which would enable the Local Government Board to effect, compulsorily, combination of districts for the appointment of medical officers of health. Even Mr. STANSFELD gave no note to this provision, although he took occasion to observe that, in introducing the Public Health Act of 1872, he had pledged himself to the principle of local government, and that he accepted the variety in the results of the application of the Act to different districts (a variety anticipated by him) as part of the educational character of the work. Nothing, perhaps, could more clearly show the extreme crudity both of the political and the sanitary principles of Mr. STANSFELD's public health administration, or its perversity, than these observations on Mr. SCLATER-BOOTH's Bill. Notwithstanding these views, Mr. STANSFELD accepts a provision which would give to the Local Government Board a power of wholly overriding local government in the exercise of one of its most important duties under the Act of 1872, and of substituting the uniform compulsory teaching of the State with regard to this duty for the eccentric conceptions of local authorities. We are not concerned here to consider the abstract merits of the provision referred to in Mr. SCLATER-BOOTH's Bill. We are simply concerned to indicate that it probably finds a place there merely as a means of overcoming difficulties originally arising mainly from errors of action of the Local Government Board rather than from any essential difficulties in the principle of local government. It is amazing that the House should not have had its attention arrested by this utter inconsistency, and sought for some explanation of it. If explanation had been asked, inquiry must have followed, and the actual nature and insufficiency of the sanitary administration of the Local Government Board been brought to light.

Mr. STANSFELD referred to the recently published reports of the general inspectors of the Board (of which we shall have more to say hereafter) in illustration of what he was pleased to term the "great progress" which had been made "during the last four years." "Great progress" in what? If Dr. PLAYFAIR had been sufficiently fortunate to rivet the attention of the House to the points of his speech which passed unheeded, we should probably have had this question raised. He directed attention, first, to a cardinal defect in the sanitary administration of the Local Government Board—namely, its failure to recognise the prevalence and increase of disease, and postponement of action until deaths were recorded; and subsequently he submitted to the House what may be regarded as the true principle underlying sanitary administration, when he said, "What the country wanted to know was whether preventable disease was being prevented, and whether the results in this direction justified the expenditure involved." In other words, Dr. PLAYFAIR thinks it advisable that central sanitary administration should have regard to the saving of life before the occurrence of death (the reverse being the case at present); and that sanitary administration, whether central or local, should be judged, like all other administrations which have any pretence to reasonableness, by their results. But this latter proposition involves another proposition—namely, that the administration shall be conceived with a reasonable view of securing the results which ought to flow from it. Dr. PLAYFAIR, it may be inferred, made his observations under the impression (common beyond the precincts of Gwydyr House) that the object of sanitary laws was to promote health, and that local sanitary organisations were only efficient in proportion as they fulfilled this aim. But the whole sanitary administration of the Local Government Board (as Mr. STANSFELD told us at Halifax) is based upon the widely different consideration that local sanitary organisation for administrative purposes is a question to be dealt with by itself, irrespective, or only casually respective, of its objects. It is from this point of view that the recently published reports of the general inspectors of the Board are expected to be read, and upon which Mr. STANSFELD's opinion of "great progress" is founded. But if they be read in the light suggested by Dr. PLAYFAIR's observations, they fail absolutely to show that the organisations effected under the

supervision of the Local Government Board, and largely by its advice, fulfil the objects for which they were designed. Nay, more—they contain evidence of the inspectors of the Board advising the authorities in direct opposition to the regulations of the Board and the intentions of the Legislature. Thus Mr. HENLEY reports of the medical officer of health: "It is only in those more serious and happily rarer encounters with enemies whose detection and extermination require the insight and the armoury of science that the intervention of the medical officer of health will be indispensable. *In ordinary times and under ordinary circumstances, it is the inspector of nuisances who will fight the sanitary battle.*" That is to say, that the whole question of prevention of disease is one of removal of nuisances, as a man of ordinary intelligence understands them. In other words, in order to maintain the sanitary policy of the Local Government Board, as inaugurated and explained by Mr. STANSFELD, put in practice by Mr. HENLEY and his colleagues, and tacitly accepted by Mr. SCLATER-BOOTH, it is necessary to set aside the teachings of medical science and of trained sanitary workers, and substitute for a rational sanitary procedure, founded upon a detailed knowledge of the causes of disease and their mode of operation, *dilettante* conceptions and the "rule of thumb." This is the theme of the reports referred to with so much gratification by Mr. STANSFELD; this is the conception accepted by the Local Government Board of the position of the medical officer of health; and it is to perpetuate such a notion in its most aggravated form that the Local Government Board ask for compulsory power to form districts. To consolidate the existing sanitary laws is one thing; to consolidate the administrative follies of the Local Government Board is another. But the House of Commons has failed to see that in being asked to do the former it is also asked to do the latter.

DR. M. LAPTSCHINSKI has recently had the opportunity, in a well-marked case of recurrent fever, of investigating the conditions of the blood, with a view of discovering the spirillum noticed by OBERMEIER in patients suffering from this disease. The patient was a young and robust man, in whom the temperature rose on the evening of the fifth day to 105·4° F. After making the most careful examination, LAPTSCHINSKI was unable to discover any spirilla; but his attention was soon attracted to the extraordinary increase in the number of the white corpuscles, which formed heaps and masses amongst the red, and also to the presence of a large number of peculiar, coarsely-granular, colourless cells, some of which contained fat granules; nearly all exhibited, even without the application of artificial heat, distinct amœboid movements. After the addition of a little acetic acid one or more nuclei made their appearance in the interior of the cells; and around the nuclei were granules. These large, coarsely-granular cells, which had been previously noticed by PONFICK in recurrent fever, he believed proceeded from the spleen. LAPTSCHINSKI, struck by the extraordinary increase in the number of the white corpuscles, set himself to estimate their number as compared with the red; and although he was unable to determine whether the relative proportions of the white and red were normal before the attack of fever, yet, as the man had been strong and healthy, there was no reason for suspecting that any disproportion had previously existed. The first estimate was made on the eighth day of the fever, after a severe sweating had lowered the temperature 9° F. or more, and the proportion that then existed was 1 colourless corpuscle to 64·3 coloured. On the eleventh day of the fever the proportion had fallen to 1:98. On the thirteenth day it was 1:119·5; and on the fourteenth, when the patient was free from fever, it was 1:138. The very next day, however, it rose to 1:41·2; and then gradually fell till the recovery of the patient had taken place. From these and other observations LAPTSCHINSKI believes the conclusion may be drawn that each febrile attack in recurrent fever is concurrent with the discharge into the blood current of the contents of the spleen; but whether at the same time pathological products, which perhaps are really the cause of the febrile attacks, are absorbed, as BILLROTH has suggested, remains to be investigated.

In a subsequent paper LAPTSCHINSKI states that, after numerous futile efforts, he has at length succeeded in discovering spirilla in the blood of a case of severe recurrent fever, and this in such numbers that the field of a No. 7 Hartnack's objective, with a No. 4 ocular, appeared to be here and there entirely filled with them. Elsewhere they were in such active movement that the red corpuscles were compressed by them and thrown into oscillation. It was the movement of the corpuscles, in fact, which made him suspect the presence of spirilla before he had seen that any were present. Thus there seems to be reason for believing that an explanation of the periodicity of certain fevers, which impresses itself on all subsequent slight febrile attacks from cold or exposure, and which is so difficult to explain upon any ordinary theory, may be found in the fact that such attacks are attended by the development of a vast number of white corpuscles, and perhaps of other products which require a definite time for their formation and action.

AFTER a lapse of three years, Mr. SIMON resumes the publication of his sanitary and scientific reports. The suppression of these reports will, after the memory of present discussions on the sanitary policy of the Local Government Board shall have passed away, remain a permanent stigma upon Mr. STANSFELD'S administration. It is true that the principles of his sanitary policy relieved the Board and its agents in the management and supervision of the Public Health Act, 1872, from any necessity for information of the kind customarily included in Mr. SIMON'S reports. But the sanitary workers preceding the new sanitary era had been accustomed to look for them as the great source of inspiration concerning official sanitary medicine, and as representing, on this and cognate subjects, the most advanced knowledge of the day. The colonies and India, and even the United States and Continental Europe, were at one with sanitary workers at home on this subject in the pre-Gwydyr-House sanitary epoch; and when the Gwydyr-House epoch was initiated with the suppression of these reports and the relegation of Mr. SIMON to some departmental limbo, the apparent official demise of that gentleman was not unnaturally regarded as the demise of scientific official medicine in this country. Happily,

it would now appear, thanks to the incongruities of officialism, that Mr. SIMON was only snuffed out as to publicity. It would appear that the sanitary and scientific work of his department went on as heretofore, and that during the suppression of the reports the stuff was accumulating out of which the reports were accustomed to be made. In fact, the results wrought out for and paid for by the public were simply withheld upon grounds which could have no really valid existence, as the reports are now again issued under the authority of Mr. SCLATER-BOOTH.

It will be remembered that before the close of the last year Mr. SIMON published the first of a series of new reports, which was devoted to the administrative questions of his office. A second report is now issued, entitled "Supplementary Report to the Local Government Board on some Recent Inquiries under the Public Health Act, 1858." A third report is to follow, containing the results of certain scientific investigations made under the authority of the Privy Council. For the present we shall briefly describe the contents of the Supplementary Report to the Local Government Board, reserving a detailed examination of its contents for the future.

The first part of the report is occupied by an examination, from the pen of Mr. SIMON, of what he designates generally "Filth Diseases and their Prevention." Taking as text certain reports on outbreaks of enteric fever by the inspectors of his Department, he has embodied in the preliminary dissertation the experience of the Department with reference to that disease and the diseases which in preventability are most akin to it. This dissertation is a masterly exposition of the existing state of knowledge, both etiological and practical, of the different questions which come under discussion.

Following upon Mr. SIMON'S dissertation there comes a series of illustrations, from inspectors' reports of the four years 1870–73, of the circumstances in which enteric fever is commonly found prevalent; and detailed reports of outbreaks of this disease at Sherborne, Dorset, by Dr. BLAXALL; in Caius College, Cambridge, by Dr. BUCHANAN; at Armley, near Leeds, and Moseley, and Balsall Heath, near Birmingham, by Dr. BALLARD; and in Marylebone, and the adjoining parts of London, by Mr. NETTEN RADCLIFFE and Mr. W. H. POWER. Dr. BLAXALL'S and Dr. BUCHANAN'S reports illustrate the propagation of enteric fever from peculiar defects in water-supply arrangements; the remaining reports relate to the propagation of the diseases through the agency of milk. The appearance of the official report on the Marylebone outbreak of 1873 exercises upon the reader something of the effect of the discovery of an ancient papyrus.

The volume closes with a detailed report of an inquiry concerning the prevention of excrement nuisances in towns and villages, by Mr. NETTEN RADCLIFFE. This report fills ninety-nine pages of the volume, and is illustrated with not less than thirty-six lithographic plates and several woodcuts. Mr. RADCLIFFE again goes over the ground traversed by him in company with Dr. BUCHANAN five years ago. If simpler modes of filth-disposal have heretofore been overshadowed by the more pretentious watercloset, this can hardly longer be said to be the case. The privy here, as contradistinguished from the watercloset, is given a literature and art of its own. It would seem almost as if Mr. RADCLIFFE, so thoroughly does he enter into the question of his report, contemplated becoming the *Deus sterculius* of our days. One shudders at the experience he must have gone through in getting together the material for this report, and we picture him fighting through his task like the Elfin Red-Cross Knight in his struggle with Error, with failing forces, and "wel-nigh choked with the deadly stink."

Annotations.

"Ne quid nimis."

HOSPITAL SUNDAY FUND.

FROM all we can learn there is every probability of the questions which have occasioned difference of opinion in regard to the distribution of the above fund being amicably settled. In truth, the amount of difference which prevails is altogether slight and unimportant. The chief dispute has reference to the treatment of contributions by payments exacted from patients. Public opinion is overwhelmingly in favour of the provident principle, and of not awarding a charitable institution less because it aims at educating those whom it helps to help themselves. But, even on this point, we believe there is no serious diversity of view either in the Council or between the Council and the Committee of Distribution. And there is no fear of the committee repeating the error of last year, of subtracting bodily from the basis of award the contributions of patients, and so reducing the awards to provident dispensaries to a most discouraging, not to say contemptible, sum. It is a little more difficult to know how to deal with these sums in the case of hospitals in which patients contribute something to their own maintenance. The public is especially jealous of any abatement of the purely charitable character of hospitals or of the assistance which is awarded to sufferers. Even here we must accustom ourselves to the idea of self-help on the part of patients, not for the sake of saving the money of the rich, but of maintaining the independence of those who need help. The essential thing is that hospitals and dispensaries too shall be able to assure their supporters and the Hospital Sunday Council that applicants shall not suffer, in the last resort, because they are not able to pay; that so long as cases are at once urgent and fit they shall be promptly and cheerfully relieved if necessary "without money and without price." We are not at all sorry that the clergy are to be called together. The sooner the better, considering the nearness of June. Without them this splendid fund could not be gathered from year to year. It is altogether fit that they should be consulted as to any questions on which different opinions may be held. But we shall be surprised if they find very much to differ about, or even to debate, at the approaching meeting.

THE CONTAGIOUS DISEASES ACTS.

AMONG the Parliamentary papers just issued is a copy of the Annual Report, for 1874, by the Assistant Commissioner of Police of the Metropolis, on the operation of the Contagious Diseases Acts. The effect of legislation in preventing or limiting the spread of disease has been made the subject of a paper and discussion at the Royal Medico-Chirurgical Society. This report, however, furnishes information on the moral and social, as well as the physical, aspects of the question. Captain Harris states that not a single case of excess or violation of duty has been brought to notice against the police employed

specially under the Acts. In towns where they are in force, the voice of the general public is strongly in their favour; the opposition proceeds from persons ignorant of the law, or who reside in places distant from the scene of their operations. Respectable persons residing within a protected district have been known to say that they would gladly pay a special rate for the maintenance of the Acts, so much did they contribute towards the peace and quietness of a town. But one of the most marked advantages attending the operation of these Acts is, that it affords some opportunity for successful efforts being made for reclaiming a woman, for rescuing a number of young and inexperienced girls, and for exposing and repressing a tyrannical and iniquitous system of trading in vice and immorality on the part of brothel-keepers and others. One hundred and nineteen girls between the ages of 12 and 18, and 123 women between the ages of 18 and 30, and 12 above that age, who had been found in bad company and improper places, have been rescued; and we would invite those who entertain religious or moral scruples to these Acts to peruse for themselves the short detailed histories of illustrative cases of this kind, set forth in the Report. Has any other system ever been tried so well calculated to track out and succour such cases? The percentage of disease, too, has considerably diminished, and would have been still further reduced, we are assured, had it not been that women come from unprotected districts, and insist upon signing the voluntary submission form, in order that they may gain admission into hospital! Here is a fact which is worth volumes of prejudiced and impassioned declamation by those whose objections are based on theoretical grounds, and not on practical information.

THE FATAL BALLOON ASCENT IN FRANCE.

A GREAT many hypotheses have been made touching the probable cause of death of the two unfortunate victims of this memorable balloon ascent — Sivel and Crocé-Spinelli. They all point to asphyxia. Already in 1874, in a preliminary expedition, Sivel and Crocé-Spinelli had been able to appreciate the danger of going above certain heights. They had provided themselves with bags of oxygen, and when, at the height of 5000 metres, they began to feel the deadly effects of absence of respirable air, they breathed the oxygen and warded off asphyxia. In this previous excursion, Crocé-Spinelli had been especially affected. He felt exceedingly weak and oppressed, and it was all he could do to sit quietly in the bottom of the boat, and breathe oxygen as fast as he could. Sivel had been less affected, but during the descent he felt icy cold, and was taken with intense shivering.

Before undertaking this last fatal exploration, they had again, and scientifically, studied the effects of rarefaction of air. Professor Paul Bert had subjected them to various experiments in his laboratory, at the Sorbonne. The effects of various atmospheric depressions were tried. At a depression of 300 millimetres of mercury, corresponding to a height of 7500 metres, the lips of Crocé-Spinelli got quite blue, whilst one of his ears was entirely black. He was almost suffocated. Breathing oxygen, however, dispelled the symptoms. Sivel, who was of a more robust constitution, resisted better; and yet, at 6000 metres, he also showed signs of discomfort and difficult breathing, which oxygen removed. They were, therefore, aware that as long as they could make use of oxygen they would be safe enough, as during their expedition of 1874; but, in this last excursion, the rapidity of ascent was such as to bring on immediate numbness and collapse, and render them incapable of using the means of safety which they had in their possession.

From the account of the voyage given by M. Gaston Tissandier, the only surviving traveller, it appears that at the height of 5000 metres they all three already began to feel oppressed and uncomfortable. However, the object of the excursion was precisely to sail into loftier regions, and study there the effects of irrespirable air. So Sivel suggested they should sail higher; Tissandier consented, saying that they knew better than he, as they had already made an excursion of the same character; and Crocé-Spinelli, who was already very much benumbed, energetically nodded assent. A considerable portion of ballast was thrown overboard, the balloon flew upwards, and the intense heat of the sun, warming and dilating the gas, gave it additional speed. All three travellers fainted away, and being unable to preserve themselves by means of oxygen, would have died, had the balloon not commenced to descend, through the loss of some portion of its gas. The descent was even more rapid than had been the ascent. The balloon fell downwards from the height of 8000 metres, which it had reached, and as they descended into more genial regions the travellers survived. Unfortunately, Crocé-Spinelli, whose intellect was obscured by asphyxia, noticing the rapidity of the descent, got alarmed, and threw overboard everything he could get hold of. Again the balloon bounded upwards, attaining a height which has not yet been ascertained, but is estimated at about 14,000 metres, and two of the disabled travellers finally lost their lives through asphyxia. When discovered later their faces were black, and their mouths full of blood.

Strange to say, Tissandier, the survivor, had not been subjected to any previous experiments, and had never before ascended such high regions. He is of a lean habit of body and nervous temperament, whereas his companions were more robust and sanguine. He ascribes his safety to the fact that he started with an empty stomach, whilst the two others had taken a full meal.

The loss of these two brave explorers of the atmosphere has been severely felt throughout France, and has made a most painful impression. It has been taken to heart by the population at large. Subscriptions are being raised for providing for the orphan child of Sivel and the bereaved father of Crocé-Spinelli. Their burial on Tuesday morning was attended by 8000 or 10,000 people, the Government and Scientific Societies being represented on the occasion. The City of Paris has granted ground for their last repose in the Père la Chaise cemetery, and marble busts of the two departed will be placed on their tomb.

The fearful end of the two travellers has not slackened the zeal of others. Already preparations are being made for further explorations in the unknown regions. So science preserves its magic attraction.

THE STRUCTURE OF THE MUCOUS MEMBRANE OF THE UTERUS.

A VALUABLE contribution to our knowledge of the physiology of menstruation has been made by Dr. John Williams, in a paper published in the last number of the *Obstetrical Journal*, "On the Structure of the Mucous Membrane of the Uterus and its Periodical Change." Dr. Williams investigated the microscopical characters of the uterus in twelve cases of persons dying at various known periods from the last menstrual flow. He was thus enabled to trace the cycle of changes which occur in the mucous membrane during the intermenstrual period and at the time of menstruation. Space forbids our doing more than give a brief outline of his results; for the detailed observations we must refer to his concise and careful descriptions and drawings. Starting from the time of cessation of the menstrual flow, when the mucous membrane of the cavity of the body of the uterus had almost entirely disappeared, that of the cervix remaining intact, he found that a rapid reformation of the membrane occurred, commencing at the lower part of the cavity, and becoming complete some days before the recurrence of the menstrual flow. Fatty degeneration of the mucous membrane then took place, preceding the occurrence of hæmorrhage, and probably

being the cause of it, and at its occurrence there was rapid disintegration and removal of the membrane. Microscopically, at the end of menstruation the bundles of the muscular coat were found to form the inner wall, covered only by some loose fattily degenerated cell-elements; mingled with the muscular fibre-cells were round granular cells, blood-corpuscles, and small fusiform cells, whilst deeper in the muscular coat were remains of glands lined with columnar epithelium, and groups of rounded cells which possibly represent the terminations of glands. The epithelium first appeared near the cervix, where it lay upon a thin layer, composed of round and fusiform cells, and glands imbedded in a structureless matrix. Beneath these were the muscular coat, and well-developed glands lined with columnar epithelium. Dr. Williams was unable to determine the precise mode of formation of the columnar epithelium, but his observations pointed to the probability of its being renewed by extension from that of the cervix. The subsequent complete growth of the epithelial lining and of the glands having attained its height, fatty degeneration speedily sets in, and another menstrual epoch occurs. Dr. Williams's researches afford a much-needed addition to our knowledge on this important subject, and his paper will repay a careful study.

A TELEGRAPHIC MALADY.

SOMETHING like a panic must have been caused amongst the telegraphists of this country by the announcement—for which a French physician is answerable—that their occupation exposed them to a disease which was said to be "very common amongst telegraph clerks." Although the disease is said to be common, only one instance of it is quoted, that of a man who, after nine years' work in a telegraph office, began to experience a difficulty in making certain signals, the attempt to do so being followed by cramp of the hand. First his thumb failed, then the first and second fingers, and when he had recourse to his wrist as a substitute for the hand, this became disabled also. This story is likely enough, and it seems possible that we may have to add "telegraphists' cramp" to the list of those diseases which are aptly named "professional impotences." It is well known that the constant repetition of any one act is liable in persons of a certain constitution to bring about a disability to perform that act. "Writers' cramp" is the best known, and physicians who are in the way of seeing cases of nervous disorders must encounter several instances of this disease in the course of a year. All other forms of "professional" disorders are, however, so rare as to be looked upon as curiosities, and although "hammer palsy," the disease peculiar to smiths, "sempstresses' palsy, in which the power of plying the needle is lost, "milkers' cramp," which is met with among the cowherds of the Tyrol, and "bricklayers' cramp," in which the power of wielding the trowel is lost, have all been described, it has fallen to the lot of very few to see such cases. Telegraphists' cramp will, we have little doubt, take its stand among the last-mentioned curiosities.

Why, it will be asked, if "writers' cramp" is tolerably common, is "sempstresses' cramp" so rare, since the number of needlewomen must more than equal the number of clerks? and why, seeing that the number of telegraph clerks is enormous, should we imagine that the "telegraphic malady" is not likely to be common? In the first place, the art of writing is one of very great delicacy, demanding an harmonious action among a vast number of muscles, which are only brought to this harmony by many years of education. Writing is a very different act to milking, sewing, hammering, or moving a telegraphic instrument, the mechanical part of which movements requires hardly any education. It will be readily conceded that the harmony of writing would be far more easily upset than the harmony of the latter acts. Again, in "writers' cramp," as has been lately pointed out by Dr. Poore, the muscles of pen-prehension (as opposed to those of pen-movement), which are subjected to a prolonged strain, and are kept constantly in a state of contraction, often for many hours, are usually the first to fail, and to drift into a condition of "chronic fatigue." In the other actions enumerated—milking &c.—the muscles employed are not tired out by prolonged strain, but by constant repetitions of the same act; and constant repetition does not seem to induce the state of chronic fatigue so quickly as sustained contraction, because in constantly repeated muscular contraction the muscle enjoys an interval of relaxation, and it is in this interval that its nutrition is maintained. The telegraph clerk usually enjoys repeated intervals of complete rest, and runs consequently hardly any risk except when called upon to perform the heroic feats of transmitting reports of speeches, and he is then obliged to rest his fatigued muscles by employing others, using one finger in lieu of another, or the wrist in place of the hand. His time of rest comes sooner or later, and then his fatigued muscles recover their tone. The risk in using some instruments seems to be greater than with others, and with the "tapping" instruments, as pointed out by a writer in *The Times*, trouble is more likely to arise than in those in which a handle is grasped by the hand. In the former the action is accomplished by the small muscles of the hand, while in the latter the grasp is effected by the large muscles of the forearm, and the smaller the muscle the more easily it would seem to be fatigued.

A muscle having become completely fatigued, another is called upon to do its work, and in the case of the telegraph-clerk reported above, the progressive nature of the malady will be observed. The same phenomenon is observable in "writers' cramp," and it is also to be observed that when once a muscle has failed those which are called upon to supply its place are sure to fail more quickly than the first, because, the attention of the mind being directed to the impaired act, the muscle quickly succumbs to the extra stimulation. As instances of prolonged strain being more dangerous than repeated contraction, we may mention that in the few cases in which violin players have suffered from "cramp" it has been the left and not the right hand which has failed. We have heard also of a performer on the violoncello who lost the power of "making the nut"—i.e., the method by which, by means of sustained pressure with the knuckle of his left thumb, he succeeded in shortening the strings of his instrument. We understand that it is, or was, a rule of the Bricklayers' Union that the trowel should never be removed from the right hand. This constant strain may be the cause of bricklayers' cramp, of which a few cases have occurred.

PERSONATION AT EXAMINATIONS.

THE letter that was published in THE LANCET of last week, headed "Disgraceful Conduct and its Penalty," deserves more than a passing notice at our hands. It told that at the Arts Examination held at the Apothecaries' Hall, on the 29th and 30th of January last, a candidate was personated by another individual; his certificate was sent to him in ordinary course, the fraud was discovered, and the candidate was required to return, and did return, the certificate (as the Secretary pertinently puts it) "the next day." And here the matter, so far as the Hall is concerned, appears to have ended.

But, as we asked last week in a brief note, why have not legal proceedings been instituted by the Apothecaries' Society? The name of the culprit was enclosed to us with

the published letter of the Secretary, but we beg to record most emphatically that it is *not* the business of THE LANCET, or of any other journal, to do the legal or judicial work of the examining bodies, either in London or elsewhere. It may be that the procuring of personation and the profiting by it are not legal offences. But the moral offence and the probable mischief likely to spring from the offence are both superlatively huge, and we take it to be the bounden duty of the Apothecaries' Society to make a distinct and immediate appeal to the law, whether the strictly legal aspect of the question is with them or against them. Publicity, at all events, will be gained, the name of the offender will be known, and so held up to reprobation, and the Apothecaries' Society, whether it wins or loses the day in a court of law, will show the profession and the public that it is prepared to uphold practically the status and dignity of its examinations. And we take leave, moreover, to record that, at this particular juncture, with respect to the circumstances of the Conjoint Scheme, nothing would so strengthen the hands of the profession in general, and of the Apothecaries' Society in particular, as a bold and direct course with respect to the disgraceful proceedings referred to. But it is monstrous and absurd to suppose that public journals are to be, so to speak, the prosecuting vehicles of examining bodies; and we submit that, in sending to us the letter published last week, the Society has not taken up a position specially calculated to maintain its ancient and honourable *prestige*.

RECRUITING.

THE author of the prize essay on Recruiting is indubitably in advance of his time—how far in advance remains to be seen. The remedy which he proposes, if it be not the best, is certainly the boldest that has yet been recommended. We ventured to say not long ago that this country was, in the opinion of many people, drifting towards compulsory military service. The prize essayist on recruiting, however, proclaims that it has been already reached, for he emphatically declares that there is only one practicable plan, and that is a system of universal conscription. This is cutting the knot with a vengeance, but the inhabitants of these islands are not likely to become ready converts to this doctrine. The drying-up of the English channel would bring about universal conscription no doubt; but so long as there is water enough to keep a fleet afloat people will very naturally place their chief reliance on the navy, and have nothing to do with continental quarrels. Regarded exclusively from a medical point of view, it is very probable that the effect of a short course of military training on the health and physique of young England would be beneficial; but to make soldiers requires time and training, and more of the former than can be sacrificed. Still, each succeeding Government will have to encounter this question of recruiting, and the difficulty of solving it satisfactorily increases every year. The long and lively debate in the House the other night ended in nothing. It is excessively hard to extract the truth out of statements that are perverted to suit one side or the other; but nobody seemed to be satisfied that our recruits are, as regards age and physique, of the kind required. The diversity of opinion entertained and expressed by the various speakers as to the remedy to be applied made Mr. Gathorne Hardy's task in replying an easy one. We have always been of opinion that the Volunteer movement, instead of being discouraged, should have been encouraged as much as possible. There is a large amount of material wasted for want of some systematic method of utilising the youth of this country by the introduction of school drill and the institution of Government training-schools; and we are not sufficiently careful to adopt a proper method for making the militia a feeding force for the army. More, too, might be done in the way of advertising the advantages of the army than at present; but after all that can be said, the discipline and loss of liberty entailed by a soldier's life are distasteful to the majority, and the maintenance of an army in this country, if it is to be raised by voluntary enlistment, means increased expenditure. One of the directions in which this might best take effect would probably be by improving the condition of the non-commissioned officers. We agree, by the way, with some of the very practical remarks recently made by Sir Frederick Fitz-Wygram at Portsmouth. The Government has increased the cubic space and ventilation of barrack-rooms without adequately increasing the amount of fuel and light, and the consequence has been that the men have been made uncomfortable. The practice, also, of putting the gas out in barrack-rooms at 9 o'clock would do very well for schoolboys, but not for grown-up men.

A NEW OPHTHALMIC OPERATION.

AT St. George's Hospital on the 16th inst. Mr. Brudenell Carter performed an operation which he stated had only quite recently suggested itself to him. It is applicable in such cases as require an iridectomy for optical purposes only.

Mr. Carter commences the operation by penetrating the anterior chamber of the aqueous with a bent, broad needle, inserted just posterior to the corneo-sclerotic junction, on the same side of the cornea as it is desired to make the artificial pupil. Through the puncture thus made the closed flat blades of Wecker's scissors are introduced, and passed anterior to the iris until their points are beyond its pupillary margin. Up to this stage but little of the aqueous having escaped, a moderate flow occurs when the scissors-blades are separated; this causes the iris to pucker itself between the blades, which should be held back a little from the cornea, so that a plait of iris is severed when they close. When the scissors have been withdrawn, an ordinary pair of iris-forceps readily remove the detached fragment of iris, which is brought into their grasp by the flow of aqueous, very similarly as the stone so frequently is in lithotomy.

One week after the performance of this operation, in the first case in which Mr. Carter practised it, we found the eye perfectly free from inflammation, with a V-shaped pupil, having its broader extremity opposite the more central part of the cornea.

Mr. Carter insists upon the necessity of entering the anterior chamber well back, so that the scissors-blades may lie directly upon the iris. He proposes to use Calabar-bean in his next case, with a view to steady the iris, as in one of the three cases upon which he has effected this operation he derived assistance from the presence of an anterior synechia.

LADY GUARDIANS.

THE parish of Kensington has, we think, set an excellent example by electing as one of its guardians Mrs. Martha Crauford Merington, and we wish Mrs. Merington all imaginable success in the prosecution of her new duties.

We think that guardianship of the poor is a position which a lady, if she have some of the right mettle in her, is eminently qualified to fill. Ladies have long been accustomed, not only in London but throughout the country, to constitute themselves district visitors, and so become acquainted with the real condition of their poorer neighbours, and they have not only been able by personal observation to find out in the various families where the shoe pinches, but why it pinches. This work has hitherto been

done in connexion with ecclesiastical establishments, and we have no hesitation in stating that similar work in connexion with the Poor-law Board cannot fail to be of the greatest possible service. Poor-law guardians have for the most part been remarkable mainly for the desire which they have manifested to keep down expense, and it has hitherto been quite exceptional to find at "the board" any knowledge of the pauper "at home." Such knowledge, however, must be needed, and it is within the power of ladies to afford it. We believe that a regular system of house-to-house visitation carried out thoroughly by ladies under the auspices of the Poor-law guardians would be productive of great good, not only to the sick and aged poor, but to ratepayers as well, and we recommend such a scheme to the notice of Mrs. Merington and the Kensington Board. We are aware that in many parts of the country guardians are hardly what may be called "ladies' men," and that any lady associating with them would be likely to deteriorate in "style"; but Kensington seems happily to be an exceptional parish, and to possess a board of guardians who are likely to appreciate the assistance which a lady may afford them in their deliberations.

The success of Mrs. Nassau Senior as an inspector of district schools was admitted on all hands, and her appointment was one of the few redeeming points of Mr. Stansfeld's administration at the Local Government Board. We trust that Mrs. Merington's success as a guardian may be of a similar kind, and may lead to the repetition of the experiment in other parts of the country.

THE DISPOSAL AND UTILISATION OF SEWAGE.

DR. CARPENTER, of Croydon, read an elaborate paper on Saturday last, the 17th inst., before the Society of Medical Officers of Health, on the Practical Power of Soils, Air, and Vegetation, to Purify the Sewage of Watercloset Towns. The speaker, however, confined himself chiefly to a description of the sewage farm at Croydon, which has, as most of our readers are aware, occupied Dr. Carpenter's time and attention for the last fifteen years, and which is declared by most authorities to be a great success. Samples of the effluent water were shown, and also specimens of the cereals and other produce from the farm. Dr. Carpenter, in the course of his address, specially emphasised the importance of air in assisting filtration, the advantage of making the filtration intermittent, and the fact that organic matter was arrested by the soil. Dr. Voelcker made some important and valuable observations on the influence of sewage on crops, and Mr. Smee characterised the Croydon farm as an unmitigated nuisance and a gross failure. Dr. Letheby demurred to the correctness of Dr. Carpenter's statistics, and remarked that, in considering the utility of sewage farms, the kind of soil, variety of produce, and actual amount of sewage used were all points to be considered. Drs. Jacob, Corfield, and Stevenson joined in the discussion, and much useful information was elicited, although the result was somewhat bewildering to the practical sanitarian.

OVERWORK.

THE sad death of the Rev. Arthur Holmes, Dean and Senior Fellow of Clare College, Cambridge, by his own hand last Saturday, adds another name to the list of those who have fallen victims to the failure of an overworked brain. Mr. Holmes was a most distinguished classical scholar, and his career at the University had been unusually brilliant. Since last Christmas, however, symptoms of nervous exhaustion plainly exhibited themselves; he had become irritable in social matters; he could not devote his attention to his work for more than two hours at a time; on one occasion his sight had failed him, and his nights were sleepless. His colleagues stated, at the inquest, that during the last term he was unusually hard worked, some heavy examination papers being required from him. These facts throw a strong light on the catastrophe. Such untimely deaths ought, however, to make others timely wise, and we hope this sad lesson may not be altogether lost. We have no doubt that had Mr. Holmes given himself a little rest when the symptoms of nervous exhaustion first appeared, he would have been spared to complete an active and useful life. Unfortunately, in the majority of instances the first symptoms are neglected or compromised. The sleeplessness is combated with narcotics—chloral to wit; and the flagging energies spurred on with stimulants and tonics, till at last, *currente rota funis eat retro*, a catastrophe like the present is the result, or the entire withdrawal from all active life is rendered imperative.

UNFOUNDED CHARGE OF NEGLECT AGAINST A SURGEON.

THE practice of medicine is a sufficiently anxious calling, especially in its obstetric department, without adding litigation and claims for compensation on the score of neglect to the worries of a medical man. To do the public justice, such a course is unusual, and we have generally to acknowledge a generous judgment, on the part of survivors, of our unsuccessful cases. Such, however, is not always the case. It was not so in a case just disposed of in the Court of Passage, Liverpool, reported in the *Liverpool Mercury* of April 16th. Mr. Sheldon was blamed for not duly examining and attending to the wife of Joseph Harvey, whom he attended in confinement, and who afterwards died with symptoms of uterine inflammation. He had attended daily and when sent for, save once, when he was unavoidably out of town, when another doctor was called in, who expressed regret that he had not been called sooner, though he ordered the same treatment—turpentine stupes—as Mr. Sheldon had ordered. The assessor said he did not think there was a shadow of pretence for the action. He thought it an improper action brought against a medical man, and gave a verdict for the defendant. We need add nothing to the words of the assessor more than to deplore the frequency with which in such cases a brother practitioner appears on the scene to express his regret that he was not called in earlier. We should have stated, as giving some explanation of the metritis, that the patient was taken out of bed and placed in a chair, the day after her confinement, by the nurse.

UNILATERAL SWEATING.

EXPERIMENTAL pathology has long pointed to an affection of the sympathetic system as the probable cause of unilateral sweating, since Bernard found that when the sympathetic was divided on one side in horses, there was sweating, as well as dilatation of the bloodvessels, on the affected half of the body. The supposition has lately been confirmed by the post-mortem examination in a case of this affection which is briefly related by Ebstein in the current number of Virchow's *Archiv*. The subject was an ammic man sixty years of age, and the unilateral sweating affected the left side of the head and trunk and the left arm. The affected parts were not reddened, nor was there any alteration in the pupil. At first the sweating only attended some severe anginal seizures, but afterwards it occurred on any considerable exertion, even on walking up and down a room. Examination of the sympathetic ganglia, hardened in Müller's fluid and alcohol, showed that those of the left side, especially the lower cervical ganglion, presented brown

dots and lines visible to the naked eye, and consisting of cavities filled with blood-corpuscles and lined by a distinct endothelium. The walls were thick, and contained many spindle-shaped nuclei. The vessels were dilated, sometimes varicose. The ganglion-cells were pigmented; on some the nucleus was quite concealed by dark-coloured granules. On the right side the nerve-cells presented a similar appearance, but there were none of the cavities, and the vessels were much less dilated.

Ebstein believes that transient interference with the function of the ganglion-cells may have resulted from occasional temporary over-distension of the dilated vessels with blood, consequent on hindrances to the escape of the venous blood. To such transient paralysis of the ganglion-cells he ascribes the hemidrosis. Analogous changes in the ganglia have been found by Lubinoff in several instances of various disorders, as puerperal fever, &c., but they were much slighter than in the case detailed by Ebstein.

"THE AIR WE BREATHE" AT WESTMINSTER.

JUST now, as we all know, the purlieus of Westminster and Whitehall swarm with distinguished and undistinguished persons from the provinces, more or less concerned in private Bills that are before committees of one or other House of Parliament. These persons pervade the Hall, throng the lobbies and passages, and crowd to suffocation the committee-rooms in which the actual business of the day is being transacted. As they pass by diminishing gradations of space from the outermost to the innermost regions, the superlatively bucolic individual and the hardest-worked country lawyer alike become conscious not only of the absence of anything like fresh, but of the existence of positively foul air. And when the committee-room is reached, and the regulation five hours have been spent therein, we may fairly surmise that our country cousins, be they agriculturists, solicitors, agents, promoters, or oppositionists, go away to dinner with headache, indifferent appetite, and a profound contempt for sanitary legislation as indicated by the ventilating arrangements of the Palace at Westminster. A great deal has been said and written about a similar state of things in our law courts both in the east and west of the metropolis, but anyone who cares to penetrate into the innermost parts of the Houses of Parliament, and force his way into one of the rooms above-quoted, will find that, though flanked by the Thames on one side, its stuffiness and odoriferous nastiness are really appalling, rivalling in these conditions the Old Bailey and an East-end police-court in their worst days. The Lords perhaps in these respects suffer more than the Commons; but in either case there is a grim irony in taking evidence relative to some sanitary Bill in an atmosphere utterly unfit for healthy respiration or for any sort of continuous mental exertion.

THE PAY OF PARISH SURGEONS.

THE time cannot be much delayed for a wholesale adjustment of the work and pay of medical officers doing the laborious and important duty of attendance on the poor. The public does not know what a miserable sum is doled out by boards of guardians for this purpose. And the press does not know. When it comes to consider the question, redress cannot be much longer deferred. We are led to think thus hopefully by a leader in the *Derbyshire Courier* on the pay accorded to Mr. Bluett, one of the medical officers of the Chesterfield Board of Guardians. We only regret that we cannot bodily transfer the article to our own columns. The facts are certainly remarkable. Mr. Bluett attends the workhouse daily, containing 252 persons of all ages, of which 109 are on the sick-list, for £37 10*s*. Often Mr. Bluett attends two or three times a day. But he has other duties, of which our contemporary shall speak.

"Again, Mr. Bluett has a district allotted to him, comprising some 17,000 inhabitants, and consisting not only of the whole borough of Chesterfield, but of Newbold and Dunston also, extending to Cutthorpe in one direction, and Sheepbridge Works in another. In such a district we can well understand that the doctor will usually have 12 or 15 people, and, when epidemics are raging, 40 or 50, who require medical aid, besides the long list of 200 aged and permanently disabled persons, who can demand his services at any hour of the day or night. Now, to go over such a district as this, and to find skill, medicine, surgical instruments, and what not, for the particular ailments of this multitude of sick folks, the guardians *pay one shilling and fourpence farthing per day*. Now we ask, what chimney sweeper, to say nothing of a collier, is expected to do such an amount of work for so paltry and contemptible a remuneration? The man who follows the coal carts, and gets in a couple of loads a day only, positively earns more money, or, rather, is paid more, than the guardians of the poor of Chesterfield and Newbold will pay for the medical relief of 220 persons. Why, it is monstrous."

We agree with the *Courier*, that the remuneration is monstrous, and in our judgment it is the duty of the guardians, both to the poor and to the profession, to make an alteration at once.

SOUTH AFRICA.

MESSRS. SILVER & Co. have recently issued a Handbook to South Africa which contains a great variety of most useful information relative to that colony, and is specially valuable in connexion with Mr. Froude's recent visit and report, and the consequent interest created as to the future of one of the finest British possessions. The hospitals and charitable institutions of the colony are supervised by a Colonial Medical Committee appointed by Government, and presided over by the Inspector of Colonial Hospitals. Cape Town posseses two large general hospitals and one lock hospital, for admission to either of which a charge is made of 2*s*. 6*d*. per day. The general infirmary for lunatics at Robben Island has accommodation for three hundred inmates. There are also general hospitals at Port Elizabeth, Graham's Town, Albany, and King William's Town, and the sum spent annually on these institutions by Government is said to amount altogether to £10,000. The author does not give much encouragement to doctors disposed to emigrate, at all events to Cape Town, for he mentions a list of 158 medical practitioners, "which certainly ought to be sufficient to keep a much larger population in healthy working order." We must refer our readers to the book itself for an able and exhaustive description of the climate, which, as has long been known, is, on account of the dryness of the air, specially suited for persons affected with chronic pulmonary disorders. With reference to the subject of climate, we may observe parenthetically that a short treatise on the climates of our colonies, having special reference to the prophylaxis or cure of various diseases, is much needed at the present time, when steam transport has placed within the comparatively easy reach of well-to-do invalids nearly all parts of the known world. But "Where shall I go?" is a question often asked by consultant, but not always easily or confidently answered by consultee.

SNEEZING.

THOSE who admire the oppressive skill which some modern writers possess of cramming much learning into simple matters should read a short pamphlet by Dr. Seguin, of New York, on "The inhibitory arrest of the act of sneezing and its therapeutical applications." The said pamphlet consists of rather less than six octavo pages in tolerably large

type, and contains more than seventy references to various authors, most of which references have the smallest possible bearing on the subject under discussion.

In 1869 Dr. Seguin discovered, what we fancy most of us have known all our life, that sneezing can be stopped by pressing the skin beneath the nose. Dr. Seguin translates the English word *stop* into the more dignified phrase *inhibitory arrest*, and really writes as if he had made a discovery. The therapeutic applications of this "inhibitory arrest" are (*a*) certain applications to medicine. In pulmonary and nasal hæmorrhages, aneurism, hepatic abscesses, hydatid cysts, and tendencies to prolapse of the rectum or uterus, sneezing might be injurious and even dangerous. Then let the patient press his upper lip. (*b*) Certain applications to surgery, as after plastic operations and in cases where hæmorrhage is to be avoided. There are some quotations on the physiology of sneezing, and some cases of pathological sneezing are recited; but the pamphlet's main use is as a record of the bibliography of sternutation.

THE OUTBREAK OF PUERPERAL FEVER AT CREWE.

A TERRIBLY fatal outbreak of puerperal fever has appeared at Crewe. At a meeting of the Nantwich Board of Guardians Mr. Heath stated that no fewer than eleven women in the prime of life had succumbed to the fell disease quite lately, adding that the contagion had been spread by medical officers in the town attending women in their confinement. Mr. Tollemache mentioned that three women had died from the disease in his immediate neighbourhood. The guardians advise the Crewe Local Board to communicate with the Local Government Board at once. The several outbreaks of this disease which have lately appeared in different parts of the country, and which have been recorded from time to time in our columns, prove but too conclusively the exceeding danger of its transmission from patient to patient by those in attendance. We have more than once pointed out the very grave responsibility incurred by anyone in whose practice the disease has appeared continuing attendance on lying-in-women. We are aware that there are some who still ask the question, "Is puerperal fever contagious?" and base their indecision on the fact that there have been cases where lying-in women have been exposed to the poison of puerperal or scarlet fever and yet have escaped unhurt. The same may be said, however, of all other infectious diseases. Everyone knows of persons who have been exposed to the poison of small-pox or of typhus fever, who have not in consequence contracted the disease, and yet we have never been asked the question "Is small-pox or typhus fever contagious?" It appears to us that the history of puerperal fever proves that the disease can be communicated without contact in some cases, and by contact in all. Whatever form of the disease may appear in practice, the most stringent measures against the spread of contagion should be promptly taken by the medical attendant, for we have had but too many illustrations of the disastrous consequences of a halting policy.

THE BRENTFORD UNION.

FROM a letter in the *Surrey Advertiser* by Mr. Bartley, we are glad to learn that some real points have been gained from the obstructives in the Brentford Board of Guardians. There is, it is true, a light air of futurity about the tenses employed to describe certain changes, but, on the whole, clearly there is much improvement in the direction which we and others—notably Mr. Bartley—have indicated. The infants are allowed the unspeakable (if cheap) pleasure of getting into the fresh air almost every fine day; the older ones get some instruction in the school, and are not dependent solely on the old pauper "granny," who lacks the ability to read, an accomplishment desirable in a teacher; the overcrowding in the infirmary is or is to be abated; the small eruption ward is only to have one patient instead of five; the appointment of a second nurse has been secured; the erection of a separate ward for infectious cases is being "thought of"; the removal of the children from their present miserable wards into proper schools has been secured; &c. &c. We congratulate Mr. Bartley on his year's work, and we shall be glad if we find ourselves able some day to confirm his rosy account of the changes since our last visit.

THE SUPPLY AND STORAGE OF WATER.

THE Council of the Social Science Association have recently issued a *précis* of subjects for inquiry by a Royal Commission relative to this important subject. The list of particulars to which attention is specially directed includes the sources of supply, their variations with the years and seasons, the mechanism of distribution, the actual consumption and the required supply, the commercial bearing of the question of water-supply, the physiological and pathological effects of various kinds of waters on health, the conditions under which water might be transferred from one watershed to another, the diversion of water for manufacturing or trading purposes, and the arrangements required to secure an official annual report on the water-supply of the kingdom. The Association is always full of good intentions, but in this case appears to have exceeded itself. We have culled very slightly indeed from the tremendous list of subjects enumerated for inquiry, and if, when the Commission is appointed, its members consider and report properly on a fraction of these subjects, we shall be more than satisfied.

HOSPITAL CONSTRUCTION.

WE would direct our readers' attention to the short and practical description of the Rotherham Hospital to be found in another column. The principles of hospital construction have been already set forth in a series of papers by Dr. John Sutherland and Captain Galton, F.R.S., in the pages of THE LANCET, and those who are interested in the subject—and who is not?—will find it worth their while to see how far these principles have been practically embodied in the apparently excellent hospital at Rotherham. Mr. Shearman deserves credit, too, for frankly indicating the faults that have been committed in connexion with the building he describes. We agree with him in thinking that what has been nicknamed "the glass and glare principle" has been occasionally pushed to excess, and that, on the whole, too little attention is given to some modifications that might be made in this and other respects, according to the position of a building, the size and character of the wards, and the class of cases treated therein.

MEDICAL OFFICER OF HEALTH AT CAMBRIDGE.

WE understand that a local practitioner, Mr. Bushell Anningson, has offered himself as a candidate to the Cambridge Sanitary Authority for the post of medical officer of health, which is about to be made in that town. Mr. Anningson was educated at King's College Hospital, and subsequently proceeded to Cambridge, where he obtained a scholarship at Caius College, and graduated with honours in the Natural Science Tripos. He has also done good work at the Anatomical Museum, under Professor Humphry; and has acted as examiner at the Special B.A. and Local Examinations of the University. Mr. Anningson promises,

if elected, to refrain from private practice, and devote himself entirely to the duties of the office. This is an additional recommendation to his other qualifications. We are quite sure that the future medical officer of health at Cambridge, whoever he may be, will find himself so fully occupied with the duties of the post that he will have little time for private practice—that is to say, if he does his duty conscientiously.

AN ENTERPRISING WATERING-PLACE.

LLANDUDNO was well advised when it decided to have a new system of drainage, and we do not doubt that the expenditure of the £23,000 upon such an object, although we are told that it will impose an extra rate of about 1s. in the pound upon the ratepayers, will in the end prove a good investment. We cannot blame the town for writing to *The Times*, in the person of their medical officer of health, a full description of their new drainage system. The letter will not only serve the purpose of an excellent advertisement of the additional advantages which Llandudno has now to offer to its expected visitors, but it may also stimulate other and rival watering-places to enter into competition for public favour by similar activity in sanitary matters. The Registrar-General's annual table of the mortality in watering-places, although so roundly abused as misleading by many of the local authorities, and especially by those of Llandudno, has evidently not been published in vain. With its new sanitary arrangements, this pretty watering-place will secure an enhanced popularity, and will probably be second to none in point of salubrity.

UNIVERSITY COLLEGE HOSPITAL.

SOME important changes are about to be made in the duties of the medical staff at University College Hospital. Sir William Jenner will visit the hospital only in the winter session, while Dr. Russell Reynolds, who delivers the lectures on medicine at college during the winter session, will visit the hospital during the summer months. This will doubtless lead to the appointment of another assistant-physician. We are glad to learn that these changes have been proposed with a view to improve the medical clinical teaching.

THE IRISH COLLEGE OF SURGEONS.

DR. STAPLETON and Mr. Croly have resigned their seats on the Council and seek election as examiners. It is said that Professor Mapother and Mr. Wheeler will be candidates for the vacancies at the June election.

GENERAL MEDICAL COUNCIL.

THE annual meeting of the General Medical Council will be held on Wednesday, June 16th. The Executive Committee will, according to custom, assemble a day earlier in order to arrange the order of business.

A REPORT of the sanitary condition of Burnham has been issued by the medical officer of health, Dr. Cornelius Fox. Burnham is a small town on the Essex coast, in which ague is always more or less present. It is stated that the majority of persons born and bred in the place have suffered from ague at one time or another, while every stranger who makes it his home is affected by the malarial poison. As might be inferred, liver disorders are very common. The drainage improvements which have been carried out in the district during the last few years have to some extent diminished the prevalence of the disorder, and it is satisfactory to find that, in spite of its endemic evils, the mortality of Burnham does not exceed 18 per 1000 annually.

THE condition of a district or city in which the number of deaths greatly exceeds the number of births should be a source of anxiety to physicians and humanitarians, and is of sufficient gravity to demand the attention of the Government of the country. It is very rarely that such a state of vital statistics is disclosed in England, even in periods of epidemics. The most extraordinary disparity between births and deaths of which we have ever read appears to prevail in Brooklyn, New York. We find from the annual report of the Registrar of Records of the Sanitary Bureau that, while the deaths during the year 1874 amounted to 11,011, there were only 7668 births as a *per contra*. The population of Brooklyn is about 450,000. There were no serious outbreaks of disease to account for the large excess of deaths, while the average death-rate to population was moderate—24 per 1000 annually; or perhaps the figure might in America be called low. The social bearings of this question are very intricate, and it is difficult to find out a satisfactory explanation of a fact which, if the population of Brooklyn were stationary, would in time reduce it to a city of the dead.

DR. GOLDIE, medical officer of health for Leeds, in a recent report, comments on the frequency with which cases of scarlatina occur in newly-built houses. Many houses and shops in Leeds are built with old bricks and old timber which have been rescued from the ruins of condemned property, and it is natural to associate the appearance of the disease in many instances with the character of the materials used in the construction of the dwelling-houses. The town was last year visited by a severe epidemic of scarlet fever, which has not yet completely subsided, and it is to be hoped that Dr. Goldie's observations will lead builders and contractors to endeavour to avoid incorporating poison-saturated materials in structures destined for human habitation. This is a subject worthy the attention of every medical officer of health in the kingdom.

THE ship *Berar*, which sailed from London for New Zealand some months ago, has recently arrived at Wellington, and the surgeon of the ship reports that more than one hundred cases of scarlatina occurred during the passage, twenty of which proved fatal; and that the epidemic commenced a few hours after the departure of the vessel from the Thames. Too much deliberation cannot be given to the physical examination of young emigrants before they are allowed to proceed, and there can be little doubt that the system at present carried out is capable of considerable improvement. We are informed that Mr. Vogel, who is now in London on official business from the Government of New Zealand, has brought this question prominently before the Marine Department of the Board of Trade.

IN London, 1675 deaths were registered last week, including 1 from small-pox, 18 from measles, 28 from scarlet fever, 10 from diphtheria, 76 from whooping-cough, 20 from different forms of fever, 22 from diarrhœa, and 462 referred to diseases of the respiratory organs and phthisis. The Asylum District Fever and Small-pox Hospitals contained, on the 17th inst., 119 patients, 48 of whom were under treatment for scarlatina, 55 for different forms of fever, and 6 from small-pox.

THE anniversary dinner of King's College Hospital was held on the 14th inst., under the presidency of the Duke of Cambridge. The festival, at which were present eminent members of the Church and the Bench, as well as of the medical profession, was of a highly successful character, and resulted in the accession to the funds of the hospital of £1582, exclusive of £300 for the Samaritan Fund.

THERE must be numerous fever dens in the Holborn district, to which the attention of the vestry should be directed. It is constantly made evident by the returns of the Metropolitan Asylums Board that a very large percentage of the fever cases admitted weekly into the Homerton Fever Hospital come from the Holborn Union. This undue proportion of zymotic disease, as compared with other parts of the metropolis, has prevailed for a long time. Before any improvement can be effected, it will probably be necessary to demolish entire courts of dwelling-houses, whose condition is a scandal to the metropolis. It would be very easy to indicate courts and alleys in the district unfit for human habitation.

FOR some years many of the leading inhabitants of the city of Bath have been endeavouring to establish a free library, but their efforts have hitherto failed owing to their fellow-citizens' objections to the impost of a slight rate to provide for the purchase of the necessary buildings. This difficulty has now been overcome by the liberality of Mr. Charles Mackillop, a visitor to the town, who has provided the funds for the purchase of a suitable building; and other gentlemen resident in the neighbourhood have since come forward and formed a committee on such a basis that the success of the undertaking must be considered as entirely secured.

DR. SEDGWICK SAUNDERS, medical officer of health and public analyst for the City, was presented on Monday last with a handsome testimonial, consisting of a pair of candelabra, a Warwick vase, and a silver claret jug, in recognition of his services in founding the new Guildhall Library. The presentation was made at the Mansion House by the Lord Mayor, in the presence of a large number of members of the corporation. Among others present was Mr. Le Gros Clark, the president of the Royal College of Surgeons. The cost of the new library was over £100,000, and an annual expenditure of £8000 is involved in carrying on the good work.

THE PRINCE OF WALES has ever proved himself a munificent patron and supporter of metropolitan medical charities. We were glad to observe that at the thirteenth anniversary festival of the German Hospital, held last week at Willis's Rooms, the chair was taken by his Royal Highness, who was supported on the occasion by Prince Christian, the Duke of Teck, &c. Effective appeals were made to the liberality of those present, and towards the close of the evening the substantial contribution of £5000 in aid of the hospital was announced.

CHOLERA has broken out in various parts of Ceylon. In Colombo and Galle especially the disease has violently attacked the population. In the former town 405 cases were reported in a short time, of which 288 proved fatal. The Cingalese are not distinguished for cleanliness, and it will require all the efforts of the European medical practitioners and authorities to subdue the outbreak.

IN reply to a question by Dr. Cameron in the House of Commons, the Chancellor of the Exchequer stated he was aware there was an inequality in the Government grant in aid of medical expenditure to the parochial boards of Scotland as compared with the grant for the same purpose to Poor-law unions in England, but he was not yet prepared to make any change in the existing rule.

PROFESSOR WURTZ, Dean of the Paris School of Medicine, has recently resigned the appointment of dean. The Professors of the institution will shortly be convened for the purpose of electing his successor.

DR. LYON PLAYFAIR has given notice in the House of Commons that he will ask the President of the Local Government Board whether it is the intention of Government to lay before Parliament reports by the medical officer of the Board on the practical efficiency of the Public Health Act in promoting public health.

THE annual *soirée* of the Quekett Microscopical Club was held on Friday evening, the 16th inst., at University College. The company was, as is usual, very numerous, and displayed considerable interest in the examination of the specimens exhibited. The evening proved a great success, many visitors remaining until a late hour.

WE understand that the subject of increased accommodation for reading in the Library of the College of Surgeons was a second time under the consideration of the Council at their last meeting, and that the original recommendations of the Library Committee were directed to be in part carried out.

ENCOURAGEMENT TO VETERINARY STUDENTS.

COLONEL SIR FREDERICK FITZWYGRAM, Bart., has offered the large sum of one hundred guineas *annually*, to be competed for by students or newly elected members of the veterinary profession in England and Scotland, and divided into not more than three prizes. This offer the Royal College of Veterinary Surgeons has gratefully accepted; and, as Sir Frederick was desirous that the competition should take place this session, and had been at the trouble of defining the terms of the contest, and the manner in which the different subjects for examination should be classed, the Council was of opinion that it could not pay a higher compliment to the generous donor than to ask him to select the examiners for the first year. This he has done, and the list stands as follows:—Anatomy: Mr. Fleming, M.R.C.V.S., Royal Engineers. Physiology and Histology: Dr. Burdon-Sanderson, F.R.S. Pathology and Morbid Anatomy: Mr. Hunting, M.R.C.V.S. Chemistry and Toxicology: Professor Voelcker, F.R.S. Botany, Materia Medica, and Therapeutics: Professor Bentley and Mr. Fleming. There are to be two examinations—a written one and an oral and practical one. The first is that on which Colonel Fitzwygram lays most stress, and will, of course, be the most severe. It took place in London and Edinburgh on the 19th and 20th inst., at the same hours. Six of those who obtain the highest number of marks will be selected to compete in the second examination, which will be held in London this year, and in Edinburgh next year; and the Council of the Royal College has decided that the sum offered shall be divided into three prizes of fifty, thirty, and twenty guineas each. Sir Frederick has most thoughtfully provided that those of the six elected for the final examination who may have to travel to London (or Edinburgh, as the case may be, for this concluding competition takes place in these capitals on alternate years) are to be allowed six guineas each to defray travelling and other necessary expenses, and in other ways has evidenced his desire to give this inter-scholastic contest every chance of bringing out the best man.

Sir Frederick, who is himself a member of the profession, and the author of an excellent work on "Horses and Stables," has for many years taken the warmest interest in the advancement of veterinary science, and this is only one of the numerous ways in which he has sought to encourage its students. Hitherto prizes have been limited to particular schools, and, with the exception of those offered by the Colonel, have been of very trifling value. The magnanimous grant now conferred by him will include all the schools, and cannot but lead to improved teaching and greater diligence on the part of the students. Sir Frederick's example deserves imitation, as few branches of science are of more importance, and yet so neglected and backward as in this country.

Correspondence.

"Audi alteram partem."

DIPHTHERIA AND CROUP IN THE LOWER ANIMALS.

To the Editor of THE LANCET.

SIR,—Before "diphtheria" and "croup" are dismissed from present discussion in your columns, may I be allowed, with the view of eliciting information, to direct attention to a very interesting and important branch of the subject, regarding which, so far as I can discover, the amount of existing knowledge is exceedingly small? I refer to the occurrence of "diphtheria" and "croup" in the lower animals.

I must first of all briefly state the meaning which I attach to these two very familiar but very variously employed terms—so variously employed in the current medical literature of Great Britain as to shroud a clear and simple subject in a dense phraseological and pathological haze. It is, however, satisfactory to notice in recent revisions of esteemed treatises, and in the outcome of a recent correspondence in THE LANCET, evidence that this haze is now at last clearing away and giving place to the views first made known in England by Dr. Semple, and originally developed by Bretonneau in France, and now universally adopted in France, chiefly as the result of the masterly clinical expositions of Trousseau. To-day, in Paris, by the term "diphtheria" is meant a general disease, one of the leading characteristics of which is the formation of false membranes on mucous surfaces and on the surfaces of cutaneous lesions; by "croup" is meant the laryngeal membranous manifestation of the same general disease. The French appropriation of the old Scotch word "croup" as the designation of laryngeal diphtheria has had a mischievous confusing reaction upon the literature and clinical study of diphtheria in Great Britain. This has arisen from the term croup having been employed one hundred and ten years ago in the classical treatise of Dr. Francis Home, of Edinburgh, and by his numerous copyists down to the present day, as a general name for essentially different laryngeal affections, membranous and non-membranous, diphtheritic and non-diphtheritic—a name embracing all laryngeal affections characterised by "croupy" (crowing) respiration.* In the subjoined remarks, the terms "diphtheria" and "croup" are applied to the same disease, the former to the general affection, and the latter to the laryngeal manifestation. Without risk of being misunderstood, I may now ask whether any of the readers of THE LANCET can supply, from their personal experience or reading, any facts tending to establish or discredit the occurrence of diphtheria and croup in the lower animals.

There is some reason to believe, but it has not yet been proved, that diphtheria is communicable from man to the inferior animals. A very remarkable case was observed by Professor Bossi. It is thus described by him in the *Giornale di Medicina Veterinaria Pratica d'Agricoltura*:—"A friend," says Professor Bossi, "who had lost a little boy by diphtheria, after a few days' illness, requested me to visit a very beautiful small-breed greyhound, about one year old, which had fallen ill a few days after swallowing some of the child's excrement, and some remains of food which had been served to him.† On making a careful examination of the dog I found that it was in a state of great prostration; that it had a languid look; lachrymant eyes; open mouth, copiously discharging a viscid fluid; quick, sibilant breathing; hoarse voice; full, hard, rapid pulse; the neck so stretched as to be almost rigid; and difficulty in deglutition. By digital examination, I found that the throat was œdematous, and the seat of severe pain. On opening the mouth, which was not an easy operation, I found that the mucous membrane of the fauces was red and swollen. I observed two ulcerations, one of which was on the veil of the palate and the other on the right tonsil; the latter was of some size and depth, and had elevated edges. A conjunct view of the symptoms and appearances led me to conclude that the disease under which the dog was suffering was diphtheria, or to use a better form of expression, laryngo-pharyngeal angina of pseudo-membranous or croupal character. The dog died, on the third day, from suffocation, after having had some convulsive movements. At the necropsy, the mucous membrane of the fauces was found in a pulpy state, and denuded of its epithelium. Here and there, the membranous exudation presented the appearance of compact, thick, adherent excrescences. The ulcerations were blackish, and very deep. The inflammation extended to the mucous membrane of the pharynx and larynx. The heart and lungs, which presented a blackish, flabby appearance, contained pitch-like blood, and several fibro-albuminous concretions."

This case is not recorded sufficiently in detail to admit of its being critically examined with that searching minuteness which its importance merits. It cannot, therefore, be accepted as in itself *proving* that diphtheria is transmissible from man to the lower animals, although it renders it *exceedingly probable* that when the subject has been fully investigated, clinically and experimentally, it will be found that the disease is transmissible from the human subject to the lower animals. To clear up the subject, a well-planned series of experiments on dogs and other animals is called for; and also a careful observation of the diseases of the lower animals occurring within the geographical area of epidemics of diphtheria in the human subject.

If Bossi's narrative be reliable, it supplies a strong argument in favour of the germ or fungus theory of diphtheria—a theory which is maintained by most Italian and by many German physicians.

I am, Sir, your obedient servant,

JOHN ROSE CORMACK.

Rue d'Agnesseau, Paris, 8th April, 1875.

P.S.—No confusion in clinical discussions need arise from the use of the unfortunate term "croup," if it be always employed in the following manner, *with a descriptive prefix*:—

1. "Diphtheritic Croup."—The laryngeal or pharyngo-laryngeal membranous manifestation of the general disease "diphtheria."

2. "Simple Membranous Croup."—The membranous exudation on the pharynx and larynx, the manifestation of acute inflammation, herpes, and other non-diphtheritic causes. (This genus includes the *angine couenneuse simple* of French authors.) Trousseau has elaborately and conclusively shown that, besides the *diphtheritic* membranous sore-throat, there is the genus *simple* membranous sore-throat—a genus containing many species. (See Lecture XVII., p. 436, and Vol. II. of the Translation of the New Sydenham Society.)

3. "Spasmodic Croup."—The strangulatory laryngeal affection in which there is no formation of false membrane. (This is the *faux croup* of French authors.)

* Dr. Francis Home's "Inquiry into the Nature, Cause, and Cure of Croup" was published at Edinburgh in 1765. Although the progress of medical science has shown that it contains views fundamentally erroneous, it is still a book of sterling value to the clinical student, who will always read with pleasure and profit the recorded experience of shrewd, conscientious, truth-seeking physicians of the olden time.

† I translate Bossi's case from the original Italian as quoted—apparently verbatim—by Dr. Leopoldo Nesti, at p. 230 of *Lo Sperimentale* for 1872, in his admirable "Istoria Clinica della Difterite osservata nella citta di Firenze e Contorni nel decennio dal 1862 al 1872." The manner in which the dog received the diphtheritic contagium is thus described in the original:—"*Cane levriere*.....che si ammalò quattro giorni dopo aver trangugiato alcuni escreati emessi dal ragazzino, non che degli avanzi di alimento dello stesso."

DR. SANDERSON'S SPEECH ON THE GERM THEORY OF DISEASE.

To the Editor of THE LANCET.

SIR,—Will you allow me a few lines to reply to Dr. Beale's strictures on my remarks at the Pathological Society on April 6th.

Let me assure Dr. Beale that he is quite mistaken in imagining that I am in the slightest degree disposed to ignore the scientific work of any Englishman, and that, as regards his own histological researches, I never omit any opportunity which occurs to me of expressing the opinion which, in common with all other persons who are competent to judge, I entertain of their importance and value. For many years Dr. Beale was almost the sole representative of original and systematic histological investigations relating to medicine in this country. Nor can there be a moment's doubt in the mind of anyone that by those investigations

he has contributed to the advancement of pathological knowledge in a great many important directions.

From the terms employed in Dr. Beale's letter, I imagine that he must have had before him some very imperfect report of my speech in some other journal. If he will take the trouble to read over the very accurate short-hand report printed in THE LANCET, he will find that the word "insurmountable," to which he takes exception, does not occur in it; that in using the expressions about "shrugging of the shoulders" I did not make the most distant reference either to his facts or views; and that, on the whole, I did not say anything very objectionable.

I must ask Dr. Beale to accept this letter as my reply to his communications on the same subject addressed to the Editors of other Journals.

I am, Sir, your obedient servant,
J. BURDON-SANDERSON.

Queen Anne-street, W., April 20th, 1875.

P.S. In reading over the report of my speech I observe that (nine lines from the end) the words "do not" have been inserted by mistake.

AN APPEAL.

To the Editor of THE LANCET.

SIR,—I have the sad task of making an appeal to you, as Editor of THE LANCET, to beg the favour of your advocacy, in order to raise a subscription for the family of a deceased member of the medical profession. The family (ten in number) is left in such distressing circumstances as, I venture to think, falls to the lot of very, very few.

Before entering into particulars, in order to prove to you that the case is a genuine one, I may say that Sir Jonman Moseley, Bart., Rolleston Hall, Burton-on-Trent; N. C. Curzon, Esq., Etwall Hall, near Derby; and J. W. Wolfenden, Esq., M.D., Tutbury, near Burton-on-Trent, have expressed their willingness to allow their names to be given to you as references.

The deceased was R. Thomas, Esq., surgeon of, and medical officer for, Etwall, near Derby. He died on March 19th, at the age of fifty-five. The family left to mourn his loss consists of a widow and ten children, two of whom are the only ones earning anything—viz., two sons, the eldest earning £45, the second £30, as clerks in the brewery of Bass and Co. The family has no hope of obtaining anything for the practice, as a neighbouring medical man has placed his assistant in the village. The life-policy of the deceased has lapsed, so that nothing can be expected from that source.

Hoping, Mr. Editor, that you will consent to the insertion of the subscriptions thus raised in your columns,

Believe me, Sir, very truly yours,
FREDERICK WILKINS.

Blarwood Hill, Burton-on-Trent,
April 17th, 1875.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen, having passed the required examinations for the diploma, were duly admitted Members of the College at meetings of the Court of Examiners on Tuesday and Wednesday last:—

Anningson, Thirkell, Burnley.
Barnes, John James, L.R.C.P. Edin., Bolton.
Bass, Charles William, L.S.A., Barnsley.
Buck, Charles William, Settle, Yorks.
Cosgrave, Alexander, Fairfield.
Crétin, Eugene, L.S.A., the Mauritius.
Davies, John Wm., L.R.C.P. Lond., Ebbw Vale, Mon.
Day, Edward Joseph, L.S.A., Woodyates, Dorset.
Edmond, William Richardson, Swansea.
Gossett, George, Westward Ho!
Graham, John Thomas, M.B. Glas., Tottenham.
Greenwood, Thomas Porter, Easton, Northamptonshire.
Gurdon, Edwin John, L.R.C.P. Edin., Colchester.
Hames, George Henry, Woburn-place, Russell-square.
Hellier, John Benjamin, Headingley, Yorks.
Hobson, John Morrison, L.R.C.P. Lond., Forest-hill.
Hodson, Henry Algernon, Bishops Stortford.
Hope, Thomas Murray, L.R.C.P. Edin., Westoe, South Shields.
Houlbrook, Edward, L.S.A., Ilkley, Yorks.
Hunt, John Aspinall, Ockbrook, Derby.
Jackson, Robert Alexander, Notting-hill-square.
Jameson, Leander Starr, Earl's-court-road.
Martin, Samuel Edgar, M.D. Queen's Univ. Irel., Newry, Ireland.
Miller, Frederic Daniell, L.S.A., Streatham.
Nankivell, Frank, York.
Newton, George, Newcastle-on-Tyne.
Orchard, James Stuart, M.B. Aberd., Salford.
Parker, George Roger, Lancaster.
Potter, Henry Percy, Denmark-hill.
Rawlings, Alfred, L.S.A., Plympton, Devon.
Rees, John, L.R.C.P. Edin., Dover.
Rees, David Valentine, Carmarthen.
Richardson, Arthur, Rusholme.
Romano, Frederick W. R., L.S.A., Brazil.
Smith, Charles Edwin, L.R.C.P. Lond., Preston.
Thompson, Alfred, L.S.A., Spilsby, Lincolnshire.
Treves, Frederick, L.S.A., South Hackney.
Walker, William, L.S.A., Landsend, Lancashire.
Waterhouse, Joseph Bourne, Burslem.

APOTHECARIES' HALL.—The following gentlemen passed their examination in the Science and Practice of Medicine and received certificates to practise on April 15th:—

Bevan, Richard, Clyde-terrace, Newcross.
Howard, Edwin, Lansdowne-place, Wandsworth-road.
Lucas, Arthur, Burwell, Cambridgeshire.
Packer, William Herbert, Cheltenham.
Phelps, William, Weston-super-Mare.
Rodwell, Edward Manley, Lodden, Norwich.
Thompson, Thomas William, Tavistock-square.

The following gentleman passed the Primary Professional Examination on the same day:—

Harmar, James Raffles, General Hospital Birmingham.

MR. JAMES ALLEN, Public Vaccinator, Adlington and Bollington district of the Macclesfield Union, has received a grant from the Local Government Board of £19 13*s.* for successful vaccination.

AT the nineteenth anniversary of the Royal Hospital for Incurables, held at the London Tavern on Wednesday, Sir Thomas Chambers, the chairman, stated that there were 161 inmates in the institution at Putney, while depending on it as pensioners, who each received £20 a year, were 325 persons. The hospital absorbed £9500 annually, and the pension list £6500. There were 157 candidates for the 25 vacancies to be filled next year. Subscriptions exceeding £3000 were announced at the meeting.

ROYAL POLYTECHNIC INSTITUTION.—The management of this ever popular resort have recently added several entertaining novelties to a programme which at once combines instruction and amusement. Mr. Gardner delivers a lecture on Cooking, which he illustrates by experiments and apparatus in practical operation. Mr. King discourses pleasantly on Spain, and on the Isle of Wight and its Legends. There are now in preparation lectures on the Bessemer ship, on the Channel Tunnel, and on Arctic Expeditions past and present.

A NEW MEDICAL SOCIETY.—A meeting of medical practitioners was held on Wednesday evening last, at the Athenæum, Camden-road, to confirm the proceedings of previous meetings that had been held for the purpose of constituting the "North London Medical Society." It is proposed to discuss short papers and records of cases. The ordinary meetings of the society will be held at the Athenæum on the second Wednesday in each month, from October to May. The following gentlemen have been elected officers:—President, Mr. W. B. Kesteven; vice-president, Dr. Dowse; treasurer, Dr. Hilliard; hon. sec., Mr. W. Henry Kesteven.

CONVERSAZIONE AT THE ROYAL COLLEGE OF SURGEONS IN IRELAND.—This College issued invitations for a *conversazione* for the 15th inst., and several hundred gentlemen, including the Duke of Abercorn, responded to the summons. Various experiments were performed and objects of scientific interest exhibited. A specimen of the American pest, the Colorado beetle, was shown; Tisley's pendulum for exhibiting the curves produced by the combination of rectangular vibrations; photographs of Eozoon Canadense; specimens of Eucalyptus globulus; original copy of the Koran; a butterfly formed of phosphorescent salts; an example of Limnoria terebrans, the crustacea which destroyed the telegraph cable between Howth and Holyhead; &c. &c. The collection was a very interesting one, and reflected considerable credit on the committee and those gentlemen who kindly lent various portions of it for exhibition.

HEALTH OF DUBLIN.—The Registrar-General's report for the quarter ending the 3rd inst. shows that the number of births registered in Dublin during that period amounted to 2404, being equal to 31 in every 1000; and the deaths to 2700, being an increase over the births of 296. The principal causes of death were as follows:—Bronchitis 686, phthisis 313, convulsions 149, heart disease 128, pneumonia 106, fever 77, scarlatina 71, paralysis 46, liver disease 32, croup 29, diarrhœa 29, apoplexy 23; while 59 deaths resulted from violence, 51 being accidental, one homicidal, and one suicidal. One woman died at the reputed age of 107.

BEQUESTS, &c., TO MEDICAL CHARITIES.—The Royal National Hospital for Consumption, Ventnor, has received a bequest of £1000, duty free, from the executors of the late Frederick H. Leaf, Esq., formerly treasurer to the institution.—The York Dispensary has received £500 under the will of Mr. John Roper. The Birmingham and Midland Hospital for Women has received £500 from Mr. G. P. Wragge, out of money left by Dr. Ingleby for charitable purposes. Miss S. R. Hartley has given £200 to the Royal Free Hospital, in lieu of bequeathing it by her will. The British Medical Fund has received a donation of £100 from Charles Shrimpton, M.D., of 5, Whitehall, and formerly of Paris.

PRESENTATIONS.—The Committee of the Surrey Reformatory Schools at Clapham have presented to Dr. G. P. Rugg, of Clapham-road, a valuable microscope, by Swift, of University-street, Tottenham-court-road, on his retirement from the office of honorary physician to the Reformatory School for Girls.—The second-year's students of Middlesex Hospital have shown their high appreciation of the demonstrator of anatomy, Arthur Hensman, Esq., M.R.C.S., by presenting him with a valuable set of silver salt-cellars and spoons in a handsome case.—Mr. G. S. Stratton, late medical officer to the Ledbury Poor-law Union, was lately presented with a handsome marble time-piece and a purse of fifty sovereigns, in recognition of his services in the sphere which he has vacated.—Dr. William J. Wheeler, of the City of Dublin Hospital, has been presented, by a number of students of the hospital, past and present, with an address, a massive marble clock, and two beautiful bronze figures, representing "Conde" and "Vendome," each three feet high.

Medical Appointments.

ALLEN, A. F., F.C.S., has been reappointed Public Analyst for Sheffield: £100 per annum.

BARNES, E. G., M.D., M.R.C.S.E., has been appointed Medical Officer and Public Vaccinator for the Eye District and the Workhouse of the Hartismere Union, Suffolk, vice Miller, resigned.

BELL, C. A., M.B., L.R.C.S.I., has been appointed Lecturer on Chemistry at the Steevens's Hospital Medical School, Dublin, vice Cameron, appointed Professor of Chemistry, Royal College of Surgeons, Ireland.

BURKE, J. P., M.D., L.R.C.S.Ed., has been appointed Medical Officer, Public Vaccinator, and Registrar of Births &c., for the Claremorris Dispensary District of the Claremorris Union, Co. Mayo, vice Reynolds, deceased.

COOKE, E. M., M.R.C.S.E., has been appointed second Assistant Medical Officer to the Worcester County and City Lunatic Asylum, Powick.

COOMBS, R. H., L.R.C.P.L., has been appointed Assistant-Physician to the General Infirmary, Bedford.

DAVIDSON, D. C., L.R.C.P.Ed., L.R.C.S.Ed., L.M., has been appointed Senior House-Surgeon to the Birkenhead Borough Hospital, vice Tandy, resigned.

DAVIES, F. P., M.B., C.M., M.R.C.S.E., Assistant Medical Officer at the State Lunatic Asylum, Broadmoor, has been appointed Senior Assistant Medical Officer to the Kent County Asylum, Barming-heath, near Maidstone.

DENNY, C. J., L.K.Q.C.P.I., M.R.C.S.E., has been reappointed Medical Officer of Health for the Hartley-Wintney Rural Sanitary District: £120 per annum.

EWART, J. C., M.B., C.M., has been appointed Curator of the Museums of Anatomy and Comparative Anatomy at University College, London.

GOULLEY, A. P., L.R.C.P.L., M.R.C.S.E., has been appointed a Surgeon to the St. John's-wood and Portland-town Provident Dispensary, vice Allen, resigned.

HEATH, F. A., M.R.C.S.E., has been appointed Surgeon to the Cheetham College, Manchester, vice Smith, deceased.

HEMBROUGH, J. W., M.R.C.S.E., has been appointed Medical Officer and Public Vaccinator for the Waltham District of the Caistor Union, vice John Hembrough, M.D., F.R.C.S.E., resigned.

JONES, E., M.R.C.S.E., L.M., has been appointed Medical Officer to the Merthyr Tydfil Union Infirmary at Aberdare.

LAING, J., M.B., C.M., has been appointed a Medical Officer to St. Mary's Hospital and Dispensary for Women and Children, Manchester, to attend patients at their homes, vice Leonard, resigned.

MARSHALL, E., M.R.C.S.E., has been appointed Divisional Surgeon to the Mitcham Sub-division of the W Division of the Metropolitan Police, vice Hamilton, deceased.

MOLONY, P. J., M.D., L.M.K.Q.C.P.I., has been appointed Medical Officer to the Chesterton Union Workhouse, vice Beck, resigned.

MOORE, J. W., M.D., F.K.Q.C.P.I., has been appointed a Physician to the Meath Hospital and County of Dublin Infirmary, vice Stokes, resigned.

NICHOLSON, H. A., M.D., has been appointed Professor of Botany and Natural History at the University of St. Andrews, vice Macdonald, deceased.

PERCIVAL, G. H., M.B., M.R.C.S.E., has been appointed Medical Officer to the Biddulph-valley Coal and Iron Works, Brindley-ford, Cheshire, vice Swain, deceased.

PIERCE, E., M.D., F.R.C.S.Ed., L.F.P. & S. Glas., has been appointed Medical Officer for the Llanrhaiadr District of the Ruthin Union, vice Williams, whose appointment has expired.

RAINSFORD, R., M.B., C.M., F.R.C.S.I., has been appointed Lecturer on Ophthalmic Surgery at the Ledwich School of Anatomy, Medicine, and Surgery, Dublin.

RICHARDSON, C. S., L.K.Q.C.P.I., has been appointed a Medical Officer to St. Mary's Hospital and Dispensary for Women and Children, Manchester, to attend patients at their homes, vice Morris, resigned.

RICHARDSON, J. B., M.B., C.M., has been appointed House-Surgeon to the Torbay Infirmary, Torquay, vice Nicholson, whose appointment has expired.

RUDD, W. A., M.R.C.S.E., has been appointed Medical Officer and Public Vaccinator for the Middle District of the Patrington Union, vice M'Manus, deceased.

SMITH, W. J., L.R.C.P.Ed., L.R.C.S.Ed., has been reappointed Medical Officer of Health for the Rawmarsh Urban Sanitary District: £40 per annum; acreage 2578; population 8000.

STONEY, Dr., has been appointed Medical Officer, Public Vaccinator, and Registrar of Births &c., for the Abbeyleix Dispensary District of the Abbeyleix Union, Queen's County, vice Swan, resigned.

WARREN, F. W., L.K.Q.C.P.I., L.R.C.S.I., L.M., has been appointed Lecturer on Botany at the Steevens's Hospital Medical School, Dublin, vice Bell.

WILLIAMS, T. W., M.R.C.S.E., L.S.A.L., has been appointed Resident Medical Officer to the Brixton, Streatham, and Herne-hill Dispensary, vice Welsh, resigned.

Births, Marriages, and Deaths.

BIRTHS.

BROWN.—On the 15th ult., at Fraserburg, Cape of Good Hope, the wife of John Brown, M.D., of a son.

DICKSON.—On the 9th inst., at Albany-street, Edinburgh, the wife of F. K. Dickson, F.R.C.P.Ed., of Buxton, of a daughter.

ELLIOTT.—On the 20th inst., at Chichester, the wife of G. H. Elliott, M.R.C.S.E., L.S.A., of a son.

GRAHAM.—On the 17th inst., at Holmwood, Weybridge, the wife of Dr. Graham, of a son.

GRAY.—On the 9th inst., at Rugeley, the wife of Frederick John Gray, L.S.A.L., of a son.

HART.—On the 9th inst., at Great Baddow, Essex, the wife of Walter Hart, L.R.C.P.Ed., of a son.

LYALL.—On the 14th inst., at Oxford-gardens, Notting-hill, the wife of Dr. Lyall, Deputy Inspector-General of Hospitals and Fleets, of a son.

MORTON.—On the 13th inst., at Greville-road, Kilburn, the wife of Thomas Morton, M.D., of a daughter.

MARRIAGES.

DICKSON—WILLIAMS.—On the 14th inst., at Edinburgh, James Gibbons Dickson, M.D., to Joanna Macredie, widow of Edward Williams, Esq.

LEWIS—JOHNSTON.—On the 14th inst., at Cranlin Church, County Antrim, William Lewis, M.D., C.M., L.R.C.P.Ed., L.R.C.S.Ed., of Houston, Renfrewshire, to Annie, daughter of William Johnston, Esq., of Mountain Lodge and Clady, County Antrim.

NORRIS—URQUHART.—On the 14th inst., at Lauder-road, Edinburgh, Henry Lee Norris, M.D., to Charlotte Mary, youngest daughter of James Warden Urquhart, Esq.

PEARDE—PRATT.—On the 17th inst., at Trinity Church, Marylebone, Henry Pearde, L.R.C.P.Ed., L.R.C.S.Ed., L.M., L.S.A., F.M.S., Surgeon-Superintendent New Zealand Government Emigration Service, to Annie Christian Annie, youngest daughter of Henry Pratt, Esq., Norfolk.—No Cards.

DEATHS.

BOYD.—On the 12th inst., at Ardrossan, James Boyd, late Surgeon H.E.I. Co.'s Service, of Orchard and Law Castle, West Kilbride, Ayrshire, aged 78.

COX.—On the 16th inst., W. H. Cox, M.R.C.S.E., of Burlington House, Oxford-road, Manchester, aged 58.

HASLEWOOD.—On the 6th inst., at East Worthing, John Austin Haslewood, M.R.C.S.E., aged 35.

HOWISON.—On the 6th ult., on board the Steam-ship "Africa," off Cape Sierra Leone, Dr. John Howison.

MACDONELL.—On the 24th ult., at Brock-street, Bath, Inspector-General Alex. S. Macdonell, aged 69.

M'MILLAN.—On the 5th inst., Alex. M'Millan, L.R.C.S.Ed., of Whithorn, Wigtonshire, aged 83.

MILLER.—On the 6th of Feb., at Sydney, New South Wales, Andrew R. Miller, L.R.C.P.Ed., F.R.C.S.Ed., aged 41.

NICOL.—On the 12th inst., John Nicol, M.D., of Ardmarnoch, Argyllshire, aged 84.

RICHARDS.—On the 16th inst., at Redruth, William Joseph Richards, M.R.C.S., aged 31.

SMELLIE.—On the 20th ult. (drowned while bathing in Lake Conway, St. John's River, Florida), Geo. Wm. Smellie, M.B., C.M. aged 23.

STEWART.—On the 6th inst., Robt. Stewart, M.D., Resident Medical Superintendent of the Antrim Lunatic Asylum, Belfast, aged 71.

WALKER.—On the 16th inst., Benj. Walker, M.R.C.S.E., of Queen's-road, Chelsea, aged 61.

[N.B.—*A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*]

Notes, Short Comments, and Answers to Correspondents.

METROPOLITAN HEALTH IN 1874.

THE Registrar-General's Annual Summary of his Weekly Returns during 1874 affords the means for comparing the recent health of London with that which has prevailed in other large English towns, and with the health of the metropolis in past years. The population of London in the middle of 1874 was estimated at little short of three and a half millions of people, living in the average proportion of 45 persons to the acre. In the 28 registration districts of London this density of population ranged from 5 persons per acre in Lewisham, to 200, 219, and 237 respectively in Holborn, St. Giles, and Westminster. The death-rate during 1874 among these more than three millions of people averaged 22·5 per 1000; and, notwithstanding the scarlet-fever epidemic and the excessive mortality which prevailed during the last few weeks of the year, in consequence of the low temperature, was identical with the London death-rate in 1873, although 1 per 1000 higher than that in 1872. In the past three years 1872-3-4, a marked improvement in the health of London appears to have taken place, the death-rate having ranged 22·2 per 1000, against 24·4 in the three immediately preceding years. This reduction in the death-rate is equal to a saving of more than 20,000 lives in London during the later period of three years. From another point of view the health of this huge town during 1874, judged by its death-rate, may be pronounced satisfactory; the London mortality throughout the year was almost identical with the average death-rate in the whole of England and Wales, 22·5 against 22·3 per 1000. It was, moreover, 5·1 below the average rate in 17 of the other largest English towns, in only one of which, Portsmouth, was the rate lower than in London (20·4); whereas in the other towns it ranged upwards to 30·4 in Manchester, and 32·0 in Liverpool. It is, therefore, beyond question that the London death-rate has sensibly declined in recent years, and that it is low compared with other urban rates. Tried by two other tests, the London mortality in 1874 may be taken as evidence of a comparatively favourable sanitary condition. The death-rate from the seven principal zymotic diseases was equal to 3·3 per 1000, and somewhat lower than the average rate from these causes in the whole of England and Wales; whereas this zymotic rate was 6·0 in Sheffield, 6·3 in Leeds, 7·3 in Birmingham, and 8·4 in Liverpool. The comparison of infant mortality, measured by the proportion of deaths under one year to births registered, is equally favourable to London. Infants in the metropolis died at the rate of 155 per 1000, against 151 in England and Wales; whereas in the 17 other large towns, with an aggregate population nearly as large as that of London, it averaged 193 per 1000, and was so high as 233 in Liverpool. The sanitary organisation and condition of London is far from perfect; but a careful consideration of the figures contained in the Registrar-General's Annual Summary points conclusively to a satisfactory result from what has been done in recent years in the way of improved drainage and water-supply, and from the labours of our metropolitan health officers. London is not yet in that healthy condition which will warrant its sanitary authorities to rest, although there is much to be thankful for, and to encourage the present officers of health to continue the fight against the apathy of the Local District Boards, and of the lower classes, in sanitary matters.

Mr. Canada.—Consult any respectable practitioner.

THE PERIOD OF INCUBATION IN SCARLATINA.

To the Editor of THE LANCET.

SIR,—As the period of incubation in scarlet fever is variously stated in books to be from five days to three weeks, I beg to mention that a case has just occurred in the practice of a gentleman with whom I have been associated for some time past, in which the period of incubation was exactly four weeks.

A young gentleman was sent home from a school four weeks ago, where an outbreak of scarlatina had occurred. On arrival home he was isolated, given baths, and otherwise treated with a view to prophylaxis. During his stay at home he remained apparently well, and a few days since started for London, when a copious exanthem of the specific rash made its appearance two days after his arrival in town. It may be possible that the young gentleman wore the same top-coat that he travelled in home from school, and he may thus have received a fresh dose of the fever poison; but it seems strange, if this be the correct explanation, that he did not in the first instance catch the malady.

I trust that the foregoing facts may be of some interest and value to the profession. I remain yours truly,

Ledbury, March 24th, 1875. JOHN A. RAYE, L.R.C.P.I.

A Constant Reader.—Leytonstone is neither better nor worse than many other suburban districts. Our correspondent should consult his usual medical attendant.

THE MEDICAL CLUB.

To the Editor of THE LANCET.

SIR,—A general desire having been expressed that the full complement of members of this Club should be filled up, and it having come to the knowledge of the Committee that gentlemen not belonging to the profession were deterred from joining by the professional designation of the Club, it was resolved at the last general meeting to change the name from Medical to Spring Gardens Club. This alteration, although in nowise affecting its medical character, will, it is confidently hoped, be the means of attracting a large number of lay members.—Yours obediently,

April, 1875. D. V. VALPY, Capt. (late 99th Regt.), Hon. Sec.

PURIFICATION OF THE SEINE AT PARIS.

ABOUT three months since M. Caillaux, the French Minister of Public Works, appointed a Committee to inquire into, and report upon, the possibility of disposing of the Paris sewage without any longer polluting the Seine, the condition of which, especially between Asnières (the outfall of the main sewer) and St. Germain, is now almost continually black and fetid. The Committee, consisting principally of engineers and chemists, but including also two of the Municipal Councillors of Paris, has recently made its report, and has arrived at conclusions which are as satisfactory as they are radical and decisive. It is urged that in future not even the drainage of a single Paris gutter shall be allowed to find its way into the Seine. By means of great intercepting sewers, the whole drainage of the city is to be collected, and afterwards distributed as manure over a large area of sandy table-land, consisting of many thousand acres, which produce a large proportion of the fruits and vegetables for the Paris markets. The report is of a most sanguine character, and makes very light of any engineering or other difficulties which may stand in the way of realising this promising scheme. It is, moreover, calculated that the value of this land by the application of the sewage, which has till now been wasted, and has become such a nuisance in the Seine, will be increased by thirty millions of francs. The quality of the soil of the proposed land is said to be eminently favourable for the proposed experiment. It is to be hoped that the French Assembly will become convinced of the feasibility of this main drainage scheme, and be as prompt in ordering its adoption and execution as the Committee has been in producing their report. The Seine may then again become the limpid stream, well stored with fish, which some of its older visitors can well remember as a contrast to our then foul Thames.

J. K.—Write to the Association. A letter addressed to "Secretary" will be sufficient.

CONTAGIOUS DISEASES: PUBLIC HEALTH ACT.

To the Editor of THE LANCET.

SIR,—In your journal of March 6th you call attention to the fact that, as the law at present stands, the wilful communication of a contagious disease is not penal. In 1872, I published a letter, recommending that a clause should be inserted in the Sanitary Act, rendering the wilful communication of a contagious disease as penal as the communication of an infectious disease. I received at the time letters from the highest medical authorities, highly approving of my suggestion, but for the most part recommending that it should not then be brought before Parliament, as the Contagious Diseases Act was on its trial.

Mr. Sclater-Booth has recently, in answer to an address from the inhabitants of Parkhurst, declared that it is not the intention of Government to extend the operation of the Contagious Diseases Act. The regimental surgeons in that town lately applied to the Town Council for their consent to the introduction of the Act, as syphilis to a fearful extent existed in the regiment. The application was at first favourably entertained; but, after an investigation by the Town Council into the operation of the Contagious Diseases Act, it was refused. The inquiry showed that men known by the police to be suffering from syphilis constantly attended the resorts of prostitutes; that the unfortunate girls, after being cured at the hospitals, were constantly reinfected; while those prostitutes who were opponents to the Act lived at a sufficient distance from the town to escape surveillance.

The Public Health Act, to amend the Sanitary Act, is now before the House of Commons, and it is proposed to insert into the 119th clause, section 3, the following words:—"Any person who knowingly suffering from a contagious disease shall personally communicate such disease." If this addition, which has been drawn up by an eminent legal authority, were inserted into the Public Health Act, a person affected with a contagious disease would be extremely careful not to communicate it.

At the Anti-Contagious Diseases Act meeting, lately held in St. James's Hall, I requested permission to submit the amended clause to the consideration of the meeting. I suggested to the Secretary that the objection made to the Contagious Diseases Act—that it applied only to women—would be met by the clause, which inflicted punishment on the guilty party, "irrespective of sex." My offer was courteously declined by the Committee; but I am convinced, from the behaviour of the meeting, that, had I been allowed to propose the amendment, it would have been carried almost without a dissentient voice. The meeting agreed with the speakers when they pointed out the injustice of excluding men from the operation of the Act; but I remarked that not a single speaker alluded to the great objection entertained by the Committee to the Act—namely, that, if carried out, incontinence would be encouraged; that the existence of syphilis is a protection to public morality, and that it would be a benefit to society "if every prostitute were diseased." But had such opinions been expressed at the meeting, they would have found no response whatever.

In a pamphlet on the Prevention of Venereal Diseases lately published in Paris, the authority of Ricord and other eminent surgeons is given to the statement, that the strict surveillance of the French police has failed to arrest the spread of syphilis, because the communication of the disease is not penal, and men are exempt from the surveillance. Despite the support of Dr. Ricord, Lord Hamilton, and the Government, the introduction of the amended clause will be unfortunately and probably successfully opposed by party who now attack the Contagious Diseases Act. Mr. Stansfeld and the Committee admit the absurdity of passing a Public Health Bill which does not include a provision against contagious diseases. The wilful communication of ophthalmia, ringworm, puerperal fever, &c., they state should be made penal; but syphilis must be left free.

Your obedient servant,

Piccadilly, April, 1875. CHIRURGICUS.

"A GOOD OPENING LOST."

A CORRESPONDENT has courteously drawn our attention to an error in our number of last week (April 17th), in which "Axminster" has been printed for *Ashridge* in the annotation headed as above.

Mr. Keelley, (Birmingham.)—We will endeavour to comply with our correspondent's request next week or the week after.

SENOR MANUEL GARCIA AND LARYNGOSCOPY.

AN influential Committee has been formed to present Senor Garcia with a testimonial, in recognition of his merit in having been the first person to think of exploring the interior of the larynx with a mirror. He not only first had the idea of doing so, but first succeeded in seeing the action of the vocal cords during inspiration and vocalisation in his own larynx. This was in the year 1854. He embodied the results of his observations in a communication to the Royal Society in 1855. Dr. Türck (of Vienna) and Professor Czermak perceived the importance of Garcia's observations. And we all know the value of the laryngoscope now as adapted and perfected by Czermak. It is both well and interesting, however, to remember the origin of this great practical instrument in the enlightened and physiological researches of Senor Garcia. The Committee includes Lord Coleridge, Sir Julius Benedict, Mr. Critchett, Mr. Bowman, Sir Wm. Fergusson, Professor Donders, Dr. Bland Radcliffe, Professor Owen, and others. We commend the object to all who appreciate either the human voice or the growing efficiency of the instrument by which medicine is being perfected.

PROFESSIONAL ETIQUETTE.

To the Editor of THE LANCET.

SIR,—Dr. George Johnson now says that Dr. Falls made no "mistake" when he furnished me with the history of the case, and requested me to take charge of it. Dr. Johnson asserts that he himself has made no mistake; but it is evident there is a mistake somewhere, and from Dr. Falls's letter, quoted by Dr. Johnson, it would appear that this so-called mistake rests with Mr. Plunkett, who failed to apprise Dr. Falls of the arrangement said to have been made between himself and Dr. Johnson for the patient's medical attendance on his arrival at Ventnor.

But all this is really wholly beside the question. I had been duly requested to take charge of the case by Dr. Falls, the patient's then medical attendant, and this with the full consent and concurrence of the patient. I was in actual attendance at the time, with the expectation on the part of the family that that attendance would continue, when Dr. Johnson appears on the field, and he, knowing that the patient was under my care, remarked to the patient's son, when he called upon him in London, that I was a physician, and that what he (Dr. Johnson) required was a general practitioner, and directed that my services should be at once dispensed with, and another medical man called in to meet him in the case. All this he did without a word of explanation or apology, and I say that in thus acting he has passed upon me an affront and an unmerited injury. The only explanation I obtained at the time was embodied in the question, "Was I not a consulting physician?" and even now Dr. Johnson fails to make any proper amend for his conduct, and frankly to acknowledge that he has acted towards me in a manner altogether unusual and unjustifiable; but says the friends "were not to be deterred by angry threats from preferring the patient's welfare to a mistaken and perverted view of professional etiquette." Now, the medical advisers of the patient were Dr. Falls and Dr. George Johnson. How both these gentlemen have acted we have already seen, and Dr. Johnson's reference to the family of the patient would make it appear that they were parties to the treatment I have received. This is not so, however; for, though I think they were to some extent to blame for acquiescing, through, they state, a want of knowledge of what constitutes professional etiquette, in Dr. Johnson's extraordinary request that I should be at once dismissed to make room for another, they have yet tendered me their expression of regret for the treatment to which I have been subjected at the sole instance of Dr. Johnson.

But the reader will have perceived that the paragraph I have quoted above contains an insinuation that there were professional reasons, involving the welfare of the patient, why my attendance should be dispensed with for that of another; implying, in fact, that that other was more capable of treating the case to the advantage of the patient than I was myself. The case in question was mainly one of disease of the kidneys, involving the necessity of making quantitative, periodical analyses of the urine, and my qualifications for the treatment of such cases, I may be pardoned for saying, has been sufficiently proved by the publication of my well-known work on Urinary Diseases.

Dr. Johnson tries to fortify his position a little by quoting a letter from Dr. Falls, and one which I think he would have done well not to have written. Dr. Falls says, "If I may offer an opinion, I should say that the fact of my having written to Dr. Hassall respecting Mr. —— cannot be looked upon by him as final"; and again, "Dr. Hassall would not have seen the patient had not Mr. Plunkett unluckily omitted to write." Dr. Falls did not simply *write* to me respecting the patient, but he furnished me with the full history of the case, and requested me to take charge of it. As to finality, there was nothing of course in the nature of my attendance to preclude the patient being seen in consultation with Dr. Johnson or anyone else whom it might be thought desirable to consult. It is surely disingenuous of Dr. Falls to write that I should not have seen the patient had not Mr. Plunkett omitted to write. It was, as we have seen, Dr. Falls himself who asked me to take the case, and but for his request, then indeed it might be said I should not have seen the patient.

Dr. Johnson speaks of my bringing the case before the President and Censors of the Royal College of Physicians. I have really appealed to a still more authoritative tribunal. I have placed the case, through the columns of THE LANCET, before the whole medical profession, and I am well content with the verdict which has been given, and which I hope Dr. Johnson will take to heart in such a way as will cause him to regulate his conduct more in accordance with what is right and professional.

I remain, Sir, your obedient servant,

ARTHUR HILL HASSALL, M.D.

Ventnor, Isle of Wight, April 13th, 1875.

CHOLERA AMONG FOWLS.

IN the department of Ain, in France, several villages have been visited by this complaint. The latter proved epidemic and contagious. The fowls attacked begin by rejecting greenish matters, the comb becomes purple, the animal staggers, and finally sinks down and dies. Many farmers have experienced considerable losses by this epidemic.

MALIGNANT MARSH NEUROSIS.

M. BURDEL read on the 6th of April before the Academy of Medicine of Paris a paper on this neurosis affecting the heart. Several cases are mentioned, one of which proved suddenly fatal; the other patients were saved by the rapid administration of quinine. The lady who succumbed lived in a country seat built on a plain, which is under water in the winter and spring. At the latter end of her sixth pregnancy she was seen by Dr. Burdel, who called accidentally, and found that the pulse was so frequent that it could not be counted, and the heart gave but one continual murmur. The lady was, however, very cheerful, made no complaint of pain, and said the slight uneasiness she felt was owing to her approaching confinement. Her doctor felt, nevertheless, very uneasy, and could not bring himself to believe that this disturbance of circulation was solely owing to the parturition at hand. The latter took place the next day before the medical attendant had time to reach the house. The patient received him smiling, and made no complaint. Before leaving he found that the heart and pulse were worse. His fears were communicated to the husband, and, unknown to the patient, M. Burdel slept in the house, and intended to prescribe a full dose of quinine. The patient was, however, now seized with excessive diarrhœa and vomiting, and, no hypodermic syringe or quinine being at hand, immediate measures could not be taken. Two other doctors were called in consultation; but the patient breathed her last just as they arrived. M. Burdel is convinced that this affection consists of a malarious malignant neurosis, attacking the cardiac and the vaso-motor nerves, the mischief being principally seated in the circulation; no intermittence, remittence, or periods of any kind being noticeable.

J. H. H.—Yes, to both questions.

THE ANTIQUITY OF TRANSFUSION.

To the Editor of THE LANCET.

SIR,—Shortly before the appearance of the note on the alleged transfusion of blood in the case of Pope Innocent VIII., which is contained in your issue of this week, I had chanced to inquire, with reference to some work I was engaged on, of one of the clergy of the Jesuit Church in Farm-street, whom I have the pleasure of knowing, if he could inform me if there was any reliable ground for believing the story to be true. The answer may interest your readers, and may possibly induce some of them to endeavour to prove or disprove the correctness of a very doubtful tradition. Will you allow me to add that the author of the note in question seems to me entirely to misapprehend the true *modus operandi* of transfusion. I am not aware that any of its advocates believe that it acts, as he supposes, mainly by replacing the lost blood-corpuscles. It seems to me that its action is rather to be referred to the supply of a sufficient quantity of blood to stimulate the heart to contraction, and thus to enable the circulation to be carried on until fresh blood is formed. It may, therefore, be properly described as a strong stimulant, applicable after other stimulants have failed. I believe there are too many perfectly reliable cases of its successful employment on record to admit of any doubt of its occasional great value. Yours &c,

W. S. PLAYFAIR.

George-street, Hanover-square, April 17th, 1875.

[COPY.]

111, Mount-street, W., April 6th, 1875.

DEAR SIR,—Father Clare, who is out of town for a few days, has asked me to reply to your note respecting Pope Innocent VIII., and the alleged transfusion of blood in his case. It so happens that the matter is spoken of in the *Revue du Monde Catholique* for March 25th, 1875, in an article by M. Georges Chevalier. He says, page 448, note 4: "On s'étonne que M. Villarait admis sur la foi d'Infessura, de Burchard, de Sismondi, cette fable de la transfusion de sang. C'est avec raison que M. Gruyer rapelle à M. Villarait que la transfusion de sang ne fut pratiquée pour la première foi q'un siècle et demi plus tard."

I confess that, though I think the story a fable, this sort of refutation seems to me a *petitio principii*.

Burchard is an utterly untrustworthy authority. Who Infessura was, or whom Sismondi relies upon, I do not know. The quotation of several names does not really strengthen a case, unless the various authors rest on different contemporary testimony. I am sorry that I cannot go back to the original writers, and so track the story to its source. This is the only satisfactory proceeding, but it cannot be done without much expenditure of time. I wish I could give you a better answer, but your kindness will take the will for the deed. I remain, dear Sir, yours faithfully,

S. J.

UNUSUAL TERMINATION TO A BREACH OF PROMISE CASE.

To the Editor of THE LANCET.

SIR,—Referring to the case of breach of promise commented on in your issue of 27th February last, p. 316, may I be allowed to state that on Saturday last the parties to the action were joined in wedlock, after having eminent medical advice sanctioning the step. Your reporter is mistaken in stating that the two physicians you mention deposed to the gentleman's physical unfitness, they having only been called to prove that they saw him in a private asylum, where he was temporarily confined from an attack of mania brought on by over-study and insomnia, and they stated their opinion to the effect that persons once insane should not, as a rule, marry.

I am, Sir, your obedient servant,

T. PALLISTER YOUNG,

Lewisham, S.E., April 21st, 1875. One of the Plaintiff's Attorneys.

PRURIGO ANI.

To the Editor of THE LANCET.

SIR,—Can any of your readers inform me of the best remedy for prurigo ani? It has been going on for the last four years, but is now becoming more troublesome, the itching at times being intolerable. There is a faint show of piles, but nothing worth mentioning. Various remedies have been employed with only temporary relief: carbolic acid, ointment of galls, nitrate of mercury ointment, chloroform with glycerine, and frequent washings with soap and water during the day. Yours truly,

Aberdeen, April 11th, 1875. DELTA.

BIRMINGHAM MEDICAL INSTITUTE.

WE are glad that the correspondent who has addressed to us a long letter, protesting against our treatment of the Birmingham Medical Institute question, at last sees the illogicality of regarding the 540 persons who did not reply to Mr. Pemberton's circular as opposed to the admission of professed homœopaths to the membership of the Institute. Our only object in using the argument was to expose the folly of those who stated, because 540 out of 1000 did not return an answer, the majority were therefore favourable to their admission. Our correspondent will, doubtless, allow that this explanation renders the publication of his letter unnecessary.

THE NAVAL MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—May I draw your attention and that of the profession to an article in the *Globe*, which appeared a few days since, on the "Naval Medical Service," in which it states that the medical officers have been given all they, themselves, asked for, and yet are dissatisfied, and want more, and that the editor of the *Globe* or the writer of the article does not sympathise with us, as we are discontented without a cause.

As for the editor's sympathy, it matters not whether we receive it or not; it will not alter the facts of the case.

The last Warrant does not give what was asked for, or remove all our causes of complaint. It is true that, as far as the juniors are concerned, it gives them the position their social rank entitles them to, and which they ought to have had years ago. The alteration of the staff surgeons' uniform is, I dare say, pretty, and the title is, no doubt, much more acceptable than having "second-class" prefixed, which in the navy is a term given to all men who have so far misconducted themselves as to be liable to corporeal punishment, and we have frequently been derided in consequence. Our being allowed to retire after twenty years' full-pay service on 10½ per cent. below our earned half-pay is a boon; yet I may remark that lieutenants and commanders retire on 75 per cent. above their earned half-pay at a much younger age. The greatest cause of discontent that the mass labour under is compulsory half-pay, whereby we lose time as well. Now, Sir, I was eighteen months at one time begging for a ship, and would have taken anything and on any station, but there was no employment; consequently, at the age of forty-eight, I find myself with a little over twenty years' service. I have never shirked an appointment, but taken everything as it came. By this you will see how utterly impossible it is for anyone to reach anywhere near the maximum of the retired scale of pay. It is like climbing a greasy pole.

The navy takes away the best days of our lives. A man should not marry, or he will lead a mournful existence away (with the exception of the time he loses on half-pay) entirely from those dear to him. He hears of the death of friends, and is obliged to trust to others as regards the training of his children, to whom he is often a perfect stranger.

Do away with the half-pay system! or at least let us count the time, even if we are deprived of the pay, and thus assimilate us more with our brethren in the army, who can count on completing twenty years' service in twenty years from the date of their entry, and have the comforts of a home and being with their families, to say nothing of allowances.

The navy never can be a popular service, I grant, and the older we get the more distasteful it is; yet much more could be done to make our lives endurable in it, and with a chance in perspective of enjoying a few years of our lives on shore before we are useless and fit to be pole-axed.

I am, Sir, your obedient servant,

April, 1875. VERAX.

CORONERS AND CHEMISTS' PRESCRIBING.

To the Editor of THE LANCET.

SIR,—The case of Aubrey will hardly bear the importance which you attach to it as illustrating the danger of "chemists' prescribing"; but that there may be no misconception of what took place at the inquest, I send you a transcript of the medical evidence then taken.

I know nothing of Mr. James, and did not "compliment him on his capacity"; but after such evidence as Mr. Rice's it would have been absurd for me to say a word calculated to reflect upon him. In reply to a complaint which he then addressed to me, of being summoned there and found fault with, I told him that I found no fault with him, and that there were no grounds for doing so; and that if it would be any satisfaction to him, I had no objection to say that I thought properly educated chemists and druggists (to which body I understood he belonged) were a most valuable class of men, and that the poor were under great obligations to them for the way in which, at such trifling expense, they were able to minister to their wants, the jury in a very marked manner expressing their concurrence in the opinion. Everybody knows that medical men cannot give their time without being paid, and everybody also knows that the poor cannot pay them.

If you can suggest any plan by which such men as Aubrey can obtain, when required, "immediate skilled advice," we shall all be too glad to place you in front of public benefactors.

"Mr. Bernard Rice, Surgeon, of Stratford-on-Avon, sworn, saith:—I examined the body of deceased yesterday evening. It was that of a feeble old man, not over well nourished; small chest capacity; no external marks of violence, and nothing that could positively point to the cause of death. I have examined the prescription, and tasted the bottle produced, and say that, no matter what the man's state may have been, and assuming the bottle to correspond with the prescription, which I have no reason to doubt, the dose which he has said to have taken could not by any possibility have caused his death, which I am of opinion was an ordinary case of asthenia, by which I mean to say want of strength or, in other words, 'natural death.'"

Yours obediently,

Henley-in-Arden, April 13th, 1875. T. B. COUCHMAN.

*** We gladly insert Mr. Couchman's courteous letter. At the same time it affords no justification of a coroner appearing to pass lightly over the fact of a person being allowed to die with none but chemist's advice. There is practically no difficulty in the way of any person getting skilled advice for a reasonable sum. If they are too poor to pay, the charitable institutions or the parish—to say nothing of the kindness of medical men—supply it gratuitously.—ED. L.

A Young Naturalist.—It is stated that Mr. Darwin's new work on "Insectivorous Plants" is in the hands of the printer, and will shortly be obtainable from the publisher, Mr. Murray.

J. C. D.—Trousseau, Pidoux, Galtier, Boissière, &c.

Mr. Haggerston, (South Shields.)—We regret we cannot comply with our correspondent's request.

A Mother should consult her medical attendant.

THE DIFFUSION OF CONTAGIOUS DISEASE.

To the Editor of THE LANCET.

SIR,—At a time when this subject is attracting so much attention, it may not be amiss to indicate one or two agencies which, although apparently of trifling importance, and, at the first glance, even suggestive of the ludicrous, are undoubtedly instrumental in promoting the spread of contagious disorders, and become therefore deserving of serious recognition.

In THE LANCET of April 3rd there is a notice of M. Mégnin's paper on the "Transport and Inoculation of Virus amongst Cattle by Flies." Were evidence needed to prove how frequently insects perform most important offices in transporting organic particles from point to point, and even to considerable distances, the researches of Darwin with reference to the fertilisation of flowers by this means would alone substantiate the fact. I would now merely supplement M. Mégnin's observations by pointing out that, in the case of the human frame, fleas are quite as active, and, in all probability, more truly efficient agents in transplanting virus, in virtue of the powerful piercing apparatus with which they are provided, and which enables them to perform the process of inoculation in its most literal sense. There is no saying, therefore, how largely the risk (hygienically considered) of committing our persons to a "four-wheeler" or omnibus may be augmented by the accommodation these vehicles but too constantly afford to a tribe of minute tormentors, whose ability to inoculate admits of no more doubt than our own to inoculate with the lancet-point.

No one who has seen much of Eastern cities can have failed to notice the dense swarms of flies which may occasionally be seen clinging in such multitudes as to constitute an almost solid black mass to the exposed parts of persons labouring under acute ophthalmia and even small-pox. Is it possible to doubt for a moment that the inordinate increase of these terrific pestilences is in a great measure ascribable to the agency in question?

So much for animate agencies. Unfortunately there are also in our midst inanimate ones, which are scarcely less active, and equally hard to contend against. For example, can anyone doubt that the germs of contagious disease are often scattered far and wide by the wash-tub and clothes-basket of the laundress? This last suggestion is by no means novel. The late Dr. Lankester, as is well known, did his utmost to enlist attention to the matter, and devise means for the abatement of the evil.

But there remains another channel through which contagion may be, and no doubt often is, disseminated in our midst. To this, so far as I am aware, attention has not heretofore been directed. I allude to the circulation of books which have been poured over in the sick chamber, and have thus become impregnated with morbific material. When we reflect how long such volumes remain in close contact with the skin, there is but too great reason to fear that if infection can take place through mere contact, the conditions are here completely fulfilled.

As the recognition of danger is the first step gained in evading or removing it, I beg leave to offer these remarks for insertion in your journal.

I am, Sir, your obedient servant,

April 12th, 1875. G. C. W.

*** The source of danger last-mentioned in the above communication has been more than once pointed out in our columns, as well as the risk arising from the transmission of letters from households in which contagious disease exists.—ED. L.

BONE-SETTING.

To the Editor of THE LANCET.

SIR,—Permit me, through the medium of your invaluable periodical, to bring before the notice of the profession the case of a patient whom I attended lately for an injury to the knee of some months' duration, and which, to the time of my seeing, had been under treatment at two of our metropolitan hospitals.

The patient, Henry G——, aged sixty-five years, came under my notice at the Workhouse Dispensary, seeking parish relief only, stating he was under surgical treatment at the hospital for an injury to his knee, resulting from his hastily stepping off a chair some twelve months previously, and at the time hearing something snap; had not since been able to bend the joint, which was very painful. Finding the knee was enveloped in plaster and bandaged, I requested him to attend a few days subsequently, minus the coverings, that I might thoroughly examine the nature of the injury; thinking, from his description of the accident, it almost identical with a case I had read in THE LANCET some time previously in an article headed "On the so-called Bone-setting, its Nature and Results," by Dr. Wharton Hood, so graphically described by that gentleman.

On examination, I found no inflammation, but considerable œdematous enlargement, which I attributed to disease of the joint for so long a time, and acute pain on pressure at the lower edge of the inner condyle of the femur. In the firm belief that the joint itself was uninjured, and fixed by ligamentous adhesion, I thought it a typical case for the treatment advocated by Dr. Wharton Hood in THE LANCET of March 11th, 1871, and to which I would beg to refer your readers.

Permit me to add that after the necessary manipulation, a gentleman present, the patient, and myself heard a distinct snap, with the gratifying result that the patient expressed himself as feeling his leg to be "all right," which he was at once able to flex without assistance, and went on his way rejoicing.

I do think, with the respected author of the article on "Bone-setting," that greater care should be exercised in discriminating cases of a like nature, to save their falling into the hands of so-called "bone-setters"; and kindly permit me herein to tender my thanks to Dr. Wharton Hood, through whose instrumentality I have been the means of relieving an unfortunate patient.

I am, Sir, your obedient servant,

LOUIS H. FRANKLYN, L.R.C.P. Lond., &c.

Tavistock-place, April 17th, 1875.

THE SOUNDING PROBE.

SUCH an instrument was made in Paris by M. Colin at the time when a young man who had swallowed a fork was under treatment. It was called "résonnateur," or sounding probe. It has been lately used by M. Guyon upon a patient, who foolishly had laid a wager that he would swallow a silver five-franc piece (this coin is a little smaller than our five-shilling piece). It penetrated pretty deeply, and, feeling uneasy, the young man went into the Hôpital Necker, where probangs were thrust down, and emetics, with enormous quantities of water, were used. These means were fruitless, and M. Guyon had recourse to the sounding probe, which, when it had travelled half way down the neck, was heard to strike against the coin. Œsophageal forceps supplied with projecting teeth were then tried, and the foreign body fortunately extracted.

Mr. Lawson Tait is thanked.

ERRATA.—In the letter we published last week, page 563, from Mr. H. C. Mayer (not H. P. Mayer, as the signature there appears), for "medulla spinalis," read "medulla *oblongata*."

COMMUNICATIONS not noticed in the current number will receive attention in our issue of the ensuing week.

COMMUNICATIONS, LETTERS, &c., have been received from—Sir H. Thompson, London; Mr. T. Holmes, London; Mr. Henry Lee, London; Dr. Ralfe, London; Mr. Sidney Jones, London; Dr. Coupland, London; Dr. Palmer, New York; Dr. Thorowgood, London; Dr. Haviland, London; Dr. Ramsey, London; Dr. Sedgwick Saunders, London; Mr. Fawcett; Mr. Nunneley, Leeds; Mr. Lawson Tait, Birmingham; Surgeon-Major MacDowall, India; Dr. Mapother, Dublin; Mr. Davis; Mr. Garstang, Manchester; Mr. Harding, New York; Dr. Diver, Southsea; Mr. Franklyn, London; Dr. Garrett, Hastings; Dr. Dukes, Rugby; Mr. Geo. Fleming, Chatham; Dr. W. S. Playfair, London; Dr. M'Connell, Calcutta; Mr. Mackenchar; Mr. M'Hardy; Mr. Young, London; Mr. Rogers, London; Mr. Clarkson, Birmingham; Mr. Phillips, Bury; Mr. Robinson, Dublin; Mr. Simson; Mr. Mayer, London; Mr. Horne, Scarborough; Mr. Ricketts, St. Heliers; Mr. Napier, London; Mr. Poole, London; Mr. Sewill, London; Mr. Winchester, Barnes; Dr. Ritchie, Hoyland; Mr. MacCormac, London; Dr. Evans, Harwich; Dr. Steele, Montrose; Mr. Casado, London; Mr. Rhodes; Dr. O'Connor, Chatteris; Mr. Vogl, London; Mr. Rose, Stornoway; Mr. Clarke, London; Dr. Curran, Mansfield; Mr. Roskrow, Redruth; Mr. Jesse, Alderbury; Mr. Pearse, Wisbeach; Mr. Haggerston, South Shields; Messrs. Pearson and Co., Edinburgh; Dr. Freund, London; Mr. Williams, London; Mr. Evans, West Bromwich; Mr. Andrew, London; Mr. Deane, Huddersfield; Miss Miller, Talgarth; Mr. Allen, Bollington; Messrs. Hewlett & Co., London; Mrs. Spearing, Cambridge; Mr. Tucker, South Molton; Mr. Thomson, Southall; Dr. Davies, Sherborne; Messrs. Lipscomb & Lloyd, St. Albans; Mr. Murray, London; Dr. Corby, Cork; Mr. Sutcliffe, London; Mr. Gregg, London; Mr. Drew, Portsmouth; Mr. Taaffe, Littleworth; Dr. Dougall, Glasgow; Mr. Giffard, Brighton; Dr. Nicholas, Wandsworth; Mr. Gray, Rugeley; Dr. Allan, Fort William; Mr. Gwynne, Dorchester; Messrs. C. & S. Kertey, London; Messrs. Southall & Co., Birmingham; Mr. Davies, Broadmoor; Dr. Dreschfeld, Manchester; Mr. Wilkins, Burton-on-Trent; Fair Play; The Secretary of the East Sussex Infirmary; Medicus; A., Liverpool; Medicus; Diabetes; M.R.C.S.; X.; Constant Reader; Senex; J. H. H.; A Mother; P. M.; A Subscriber; &c. &c.

LETTERS, each *with enclosure*, are also acknowledged from — Mr. Leake, Hammersmith; Rev. J. Blesadale, Ashton-under-Lyne; Mr. Procter, Edinburgh; Mr. Pugh, Waltham Abbey; Captain Hay, Wolverhampton; Mr. Batson, Malmesbury; Mr. Torbock, Polperro; Mr. Browne, Oldborough; Mr. Mann, Birmingham; Dr. Lewis, Houston; Dr. Habershon, London; Mr. Day, Monkstown; Mr. Evans, Mothvey; Mr. Coleman, Armley; Mr. Hake, Great Yarmouth; Mr. Brown, Berwick; Mr. Balls, Holton; Mr. Whitmarsh, Chippenham; Mr. Walsham, Halifax; Dr. Rae, Blackburn; Mr. Davenport, London; Mr. Edwards, Furneaux Pelham; Messrs. Oliver and Boyd, Edinburgh; Messrs. A. and W. Fox, Manchester; Dr. Wood, Cranbrook; Messrs. Richards and Co., London; Mr. Jarmaen, Huddersfield; Mr. Smith, Manchester; Mr. Heffernan, Spennymoor; Mr. Tupholme, Brompton; Mr. Franklin, Newcastle; Mr. Gosling, Biddulph; Dr. Evans, Cardiff; Mr. Lang, South Kensington; Mr. Stedman, London; Mr. Williams, Croydon; Mr. Harding, Whittlesea; Mr. Walker, Corwen; Messrs. Jolly and Son, Norwich; Messrs. E. and T. Smith, London; Dr. Dick, London; Mr. Duncan, Speldhurst; Mr. Jones, London; Mr. Mahomed, London; Mr. Hanbury, London; Dr. Pitt, London; Mr. Reed, Monaghan; Dr. Clegg, Bacup; Mr. Sutcliffe, Glasgow; Mr. Collins, London; Messrs. Cadbury, Birmingham; Mr. Reilly, New Cross; Mr. Sharp, Greenwich; Dr. Dixie, London; Mr. Morris, Spalding; Mr. Mackenzie, Barrow-in-Furness; Mr. Owen, Beaumaris; Dr. Arnold, Yardley-Hastings; Mr. Hopkins, Bere Regis; Mr. Atkinson, Wylam-on-Tyne; L.R.C.P., London; J. and H., Uttoxeter; L.R.C.P., Shrewsbury; Physician, Llanelly; Surgeon, Whitechapel-road.

Western Morning News, Welshman, Folkestone Express, Manchester Evening News, Record, Newcastle Daily Chronicle, Cork Constitution, Liverpool Post, Macclesfield Chronicle, East London Observer, Huddersfield Daily Chronicle, London Advertiser, Liverpool Mercury, Surrey Advertiser, Manchester Guardian, Llangollen Advertiser, Lincoln Gazette, Isle of Man Times, Metropolitan, Sheffield Daily Telegraph, Derbyshire Courier, Liverpool Albion, and *Freeman's Journal* have been received.

METEOROLOGICAL READINGS

(*Taken by Steward's Instruments*).

THE LANCET OFFICE, APRIL 22ND, 1875.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Wet Bulb.	Dry Bulb.	Solar Radia. in Vacuo	Max. Temp. Shade	Min. Temp.	Rain-fall.	Remarks at 8 A.M.
Apr. 16	30·38	S.E.	40	43	...	52	39	...	Overcast
„ 17	30·26	S.E.	40	42	...	62	39	...	Foggy
„ 18	30·12	S.E.	40	50	...	65	40	...	Fine
„ 19	30·13	E.	43	47	...	70	42	...	Overcast
„ 20	30·18	E.	44	46	...	72	42	...	Overcast
„ 21	29·89	S.	49	53	...	71	45	...	Overcast
„ 22	29·89	E.	39	42	...	...	40	...	Raining

Medical Diary for the ensuing Week.

Monday, April 26.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10½ A.M. each day, and at the same hour.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M. each day, and at the same hour.
ST. MARK'S HOSPITAL.—Operations, 9 A.M. and 2 P.M.
METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.
MEDICAL SOCIETY OF LONDON. — 8 P.M. Mr. William Adams, "On the Treatment of Broken Nose by Forcible Straitening and Mechanical means." — Mr. Henry Smith, "On the Results afforded by 400 Cases of Hæmorrhoids and Prolapsus of the Rectum, operated on by the Clamp and Cautery."

Tuesday, April 27.

GUY'S HOSPITAL.—Operations, 1½ P.M., and on Friday at the same hour.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 3 P.M.
ROYAL INSTITUTION. — 3 P.M. Prof. Duncan, "On the Grander Phenomena of Physical Geography."
ROYAL MEDICAL AND CHIRURGICAL SOCIETY.—8½ P.M. Dr. W. H. Day, "On Pulmonary and Cardiac Complications of Abdominal Tumours." — Mr. Fergusson M'Gill, "On a Case of Left Subclavian Aneurism treated by temporary Compression direct to the Artery." — Mr. Henry Lee: Sequel to a paper "On Excision of the Ankle-joint."

Wednesday, April 28.

MIDDLESEX HOSPITAL.—Operations, 1 P.M.
ST. MARY'S HOSPITAL.—Operations, 1½ P.M.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.
ST. THOMAS'S HOSPITAL.—Operations, 1½ P.M., and on Saturday at the same hour.
KING'S COLLEGE HOSPITAL.—Operations, 2 P.M., and on Saturday at 1½ P.M.
GREAT NORTHERN HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL. — Operations, 2 P.M., and on Saturday at the same hour.
LONDON HOSPITAL.—Operations, 2 P.M.
SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2½ P.M.
HUNTERIAN SOCIETY.—8 P.M. Mr. Durham, "On some Symptoms of Organic Disease." — Mr. Clement Lucas will exhibit a Plastic Operation of the Eyelid."

Thursday, April 29.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.
ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and on Friday at the same hour.
ROYAL INSTITUTION.—3 P.M. Prof. Seeley, "On the Fossil Forms of Flying Animals."

Friday, April 30.

ST. GEORGE'S HOSPITAL.—Ophthalmic Operations, 1½ P.M.
ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.
ROYAL INSTITUTION.—8 P.M. Evening Meeting.—9 P.M. Mr. W. N. Hartley: "Action of Heat on Coloured Liquids."

Saturday, May 1.

ROYAL FREE HOSPITAL.—Operations, 9 A.M. and 2 P.M.
CHARING-CROSS HOSPITAL.—Operations, 2 P.M.
ROYAL INSTITUTION.—2 P.M. Annual Meeting.

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